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IONOSPHERIC DATA IN JAPAN

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CONTENTS

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INTRODUCTION

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

(ii) Qualifying Letters

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

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

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

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

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

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

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

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

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

B2. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

C. RADIO PROPAGATION

C1. H.F. Field Strength at Hiraiso

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

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

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

C2. Radio Propagation Quality Figures at Hiraiso

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

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

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

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

C	artificial accident,
S	propagational accident,
U	inaccurate.

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

N	normal,
U	unstable,
W	disturbed.

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

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

C3. Phase Variation in OMEGA Radio Waves at Inubo

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

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

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

C4. Sudden Ionospheric Disturbances

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

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

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

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

Types of fade-out are as follows:

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

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

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

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

b. Sudden Phase Anomaly (SPA) at Inubo

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

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

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

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

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

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

HOURLY VALUES OF FOF2 AT WAKKANAI

JAN. 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	43	51	53	43	50	47	67	54	90	138	138	147	142	128	129	129	87	92	71	57	37	48	44	50
2	71	46	48	40	42	37	79	67	110	142	140	151	128	135	141	127	116	93	77	72	49	52	60	64
3	38	A	43	66	43	44	61	71	121	129	143	128	124	122	122	108	90	90	63	37	50	36	47	41
4	48	65	43	42	41	36		48	112	142	127	138	118	122	122	120	97	120	82	58	47	47	52	47
5	52	66	44	46	41	51	A	56	111	119	148	148	147	148	140	130	124	111	92	66	52	48	43	41
6	A	A	40	42	32	43	42	57	105	128	142	124	132	131	129	113	104	96	62	43	42	41	38	49
7	42	40	38	47	51	51	69	52	107	130	148	127	111	117	120	106	122	89	67	72	59	50	54	66
8		53	64	64	79		89	80	104	130	137	140	130	124	128	120	129	94	60	58	50	58	44	51
9	47	47	41	40	50	46	C	67	110	134	148	144	122	124	121	124	119	76	63	59	38	43	A	42
10	41	39	48	41	42	38	89	89	120	138	151	134	125	131	140	125	124	91	66	58	42	38	46	36
11	38	44	56	40	31	A	46	92	116	138	122	148	134	134	127	125	101	84	A	46	49	A	43	A
12	A	30	51	28	A	46	A	A	67	79	86	91	89	91	91	92	90	73	43	37	A	40	A	49
13	50	37	34	30	A	38	32	99	89	118	135	116	118	120	111	117	115	107	80	53	37	36	42	44
14	39		34	35	A	A		53	87	111	137	140	127	125	120	98	124	96	70	53	34	40	37	36
15	35	34		41	34	43		65	109	130	128	130	117	114	113	111	91	81	62	43	36	46	43	42
16	35	37	34	38	42	41	79	60	110	139	139	136	120	120	101	90	90	85	65	46	29	34	37	36
17	34	38	32	65	30	31	79	50	87	112	124	127	122	114	112	121	90	91	73	58	48	48	42	47
18	48	48		42	46	40	58	55	110	109	118	132	121	112	120	125	83	66	63	44	48	A	37	37
19	39	41	40	40	40	38	34	54	84	110	130	118	118	122	91	73	84	66	47	44	43	52	38	43
20	37	49	38	38	41	A	37	58	111	128	126	130	110	107	103	94	90	83	63	50	37	38	38	41
21	46	44	47	A	34	36	79	57	100	128	115	124	120	103	94	96	90	72	62	39	38	37	A	50
22		35	33	46	46	35	A	87	108	126	139	153	126	126	127	102	88	78	64	59	51	A	37	44
23	52	43	54	38	33	56	59	60	109	125	127	124	116	110	103	96	97	76	58	49	A	49	A	A
24	56	36	43	40	40	51	A	50	109	127	122	121	103	112	121	108	95	73	54	38	45	37	52	42
25	38	43	43	37	43	37		51	105	112	123	128	119	117	117	108	92	80	66	61	52	48	60	56
26	52	58	49	49	59	49	59	55	86	127	131	126	106	113	101	112	98	73	64	63	40	48	50	46
27	48	39	38	41	40	40	62	85	111	128	136	131	117	111	119	130	123	86	63	65	53	70	63	99
28	80	84	59	58	58		50	91	91	130	134	141	126	120	123	122	125	111	79	100	86			79
29		61	70			44	42	65	129	140	150	138	128	127	123	111	96	91	89	64	65	84	63	67
30	52	60	54	60	38	49	54	84	128	138	151	135	137	131	140	129	124	111	100	89	66	63	59	54
31	56	58	53	58	N	62	39	58	129	134	167	147	139	132	128	127	110	106	93	97	82	71	68	67
	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	28	29	29	26	26	22	30	31	31	31	31	31	31	31	31	31	31	30	31	29	27	26	29
MED	46	44	43	41	42	43	59	59	109	128	136	132	122	122	121	113	97	89	64	58	48	48	44	47
U Q	52	55	53	48	46	49	79	80	111	138	143	141	128	128	128	125	122	96	77	64	52	52	54	55
L Q	38	38	38	39	38	38	42	54	91	119	126	126	117	113	111	102	90	76	62	44	38	38	38	41

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT WAKKANAI

JAN. 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	32	31	32	33	G	G	104	G	G	G	G	G	G	G	G	G	G	G	28	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	39	G	47	49	G	40	28	38	G	32	36	37
3	31	37	30	G	G	G	G	78	G	G	G	G	G	G	40	G	G	61	26	G	G	G	30	36
4	28	G	32	27	G	G	G	G	86	G	G	52	38	37	41	40	G	G	35	32	G	G	G	G
5	G	G	G	G	G	G	28	G	G	G	G	50	G	G	49	47	29	30	28	G	G	G	G	38
6	38	28	G	G	G	G	G	112	41	68	G	G	G	G	G	G	G	G	G	G	26	G	G	G
7	35	27	G	G	G	G	G	G	G	38	43	52	G	G	G	G	44	G	G	G	G	G	G	35
8		72	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
9	G	G	G	G	G	G	C	30	44	47	61	62	G	G	36	G	G	G	G	G	G	38	67	58
10	59	G	G	G	G	G	G	G	G	49	G	40	G	G	G	G	G	G	G	36	G	26	26	29
11	38	G	G	59	42	35	G	69	85	G	G	G	70	39	G	G	57	49	85	57	59	58	46	59
12	70	42	59	34	44	56	36	31	G	G	G	G	G	G	G	35	50	30	41	38	41	32	57	44
13	G	33	G	46	46	G	68	37	58	G	G	G	G	G	G	G	30	46	G	G	G	31	G	G
14	G		G	G	44	44	G	45	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
15	G	G		G	G	G		32	G	60	G	G	G	G	G	38	33	G	G	G	G	G	G	30
16	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	30	27
17	G	27	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	30		G	28	G	100	G	G	G	G	G	47	G	G	G	G	G	G	25	27	28	31	G
19	G	G	28	G	30	G	G	G	G	G	44	G	48	G	G	G	37	34	37	33	G	G	32	G
20	G	G	24	54	45	33	G	G	105	44	57	65	G	G	G	G	G	G	32	G	G	G	G	G
21	G	G	G	32	G	G	G	G	G	51	G	G	G	47	51	G	30	42	32	36	32	G	54	G
22	G	G	27	G	G	30	28	58	G	G	45	G	G	G	G	G	G	G	G	28	30	31	32	G
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	44	G	G	40	31	41	30
24	G	G	G	G	G	G	32	33	48	G	G	G	G	G	G	G	G	31	60	33	32	30	35	30
25	G	G	G	G	G	G	G	G	G	G	G	64	G	G	G	G	G	59	28	28	32	38	33	G
26	G	G	G	G	G	G	G	G	33	46	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	G	G	G
28	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
29		G	G		G	G	G	47	G	G	G	G	G	G	G	46	G	G	G	G	G	G	30	31
30	G	G	G	G	G	G	G	G	G	G	G	G	50	G	47	G	G	33	30	26	G	G	G	G
31	40	36	33	36	G	G	G	G	46	57	42	64	G	G	G	G	G	G	G	G	G	G	G	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	29	30	29	30	31	30	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	30	27	12	27	28	G	14	33	41	46	G	40	G	G	G	G	29	34	30	32	30	31	33	31
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT WAKKANAI

JAN. 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	17	15	15	14	15	16	17	16	24	35	34	39	39	40	34	27	21	17	15	15	15	15	16	18
2	17	15	16	16	17	16	17	17	27	32	32	37	32	33	23	21	20	18	18	17	16	18	17	18
3	17	17	16	18	17	16	17	16	24	30	34	35	35	39	24	27	21	18	20	17	17	18	17	17
4	18	17	15	16	15	16	18	17	23	21	23	23	23	24	21	20	20	17	17	17	16	16	17	16
5	20	21	18	14	16	18	21	18	18	20	21	24	40	21	22	20	20	18	20	18	17	17	15	17
6	17	18	18	18	15	17	17	16	18	18	20	22	26	22	22	20	20	17	15	16	15	16	18	18
7	17	17	15	15	15	17	18	17	18	21	23	24	23	21	18	22	16	18	22	18	17	18	20	18
8		17	15	17	17		20	18	21	20	22	23	23	34	29	18	20	17	22	16	16	17	18	20
9	16	16	20	16	15	16	C	18	21	23	23	24	36	37	24	26	21	17	16	17	16	15	14	16
10	15	16	15	15	15	15	17	20	24	30	38	30	35	35	30	26	21	15	16	16	15	16	15	17
11	16	16	16	17	14	14	17	17	22	24	33	34	27	29	30	33	18	18	16	15	17	16	14	16
12	16	16	20	15	14	16	14	18	27	30	33	36	42	34	42	24	18	16	18	17	16	15	15	16
13	15	16	16	16	16	16	17	16	24	33	34	39	38	42	36	32	23	20	17	17	23	18	17	17
14	17			15	15	18	18	17	26	32	36	36	38	39	36	28	20	18	17	21	18	16	16	18
15	18					16		17	24	21	34	35	36	26	22	22	18	16	15	16	18	16	18	18
16	18	17	20	15	16	15		17	23	18	17	22	34	22	30	23	21	17	17	17	14	17	14	17
17	15	16	20	18	16	17	20	18	22	20	24	22	23	32	20	27	21	16	15	16	15	15	16	16
18	18	15		20	16	17	18	17	24	29	21	23	22	21	21	26	20	18	16	16	17	15	15	17
19	15	15	16	15	16	17	20	17	24	22	26	21	26	23	20	18	21	15	16	18	14	14	17	16
20	17	15	16	17	14	16	17	18	16	17	22	23	22	17	21	27	21	16	16	16	15	17	18	17
21	16	15	15	18	17	15	17	18	22	22	23	24	35	24	23	22	20	17	17	16	18	16	16	18
22		16	14	15	17	16	16	17	17	30	24	34	39	36	30	30	23	18	15	18	20	16	16	17
23	16	15	15	15	17	17	16	18	24	30	33	36	38	35	38	24	18	16	16	16	17	16	17	17
24	18	17	16	15	17	17	17	17	23	35	39	39	39	38	23	30	20	20	17	17	16	16	16	18
25	17	16	18	18	16	18	16	18	22	32	35	36	35	35	32	20	22	15	15	17	17	16	17	17
26	17	18	18	18	17	17	18	17	18	20	23	22	23	22	20	18	23	16	16	17	17	17	17	16
27	17	16	15	17	17	16	17	18	27	36	39	35	35	38	35	27	23	15	15	17	16	15	22	21
28	16	15	22	20	21	23	16	20	26	21	23	23	23	26	20	18	23	15	20	21	23	26		22
29		17	14		71	16	17	18	20	23	35	38	39	39	37	20	22	17	16	23	18	17	17	15
30	16	17	16	15	15	16	17	18	18	21	36	23	26	35	21	20	23	16	16	15	16	16	16	15
31	17	16	15	15	15	17	17	21	18	20	22	21	24	23	23	18	24	17	15	16	16	15	17	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	28	29	30	30	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	17	16	16	16	16	16	17	17	23	23	26	24	35	33	23	23	21	17	16	17	16	16	17	17
U Q	17	17	18	18	17	17	18	18	24	30	34	36	38	37	32	27	22	18	17	17	17	17	17	18
L Q	16	15	15	15	15	16	17	17	18	20	23	23	23	23	21	20	20	16	15	16	16	15	16	16

HOURLY VALUES OF FOF2 AT AKITA

JAN. 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	A	46	48	45	41	52	48	64	103	130	131	128	130	122	112	110	97	81	78	58	47	43	19	A
2	38	44	48	36	30		34	73	108	116	144	132	120	122	128	125	102	84	84	66	53	48	52	52
3	43	37	A	35	40	40	43	73	103	116	125	128	122	121	122	90	93	82	66	44	44	30	41	41
4	A	A	43	48	38			64	104	131	132	133	127	124	118	103	91	98	87	51	35	38	43	43
5	43	31	32	A	44	N		60	109	130	137	135	138	130	126	115	106	96	90	66	49	44	46	37
6	41	38	40	30	38	A		67	102	124	146	131	120	126	120	102	86	90	81	51	34	50	30	26
7	35	42	40	35	37	34	34	66	110	131	138	122	103	101	111	103	90	86	67	49	35	44	45	42
8	44	44	42	41	38	32	32	67	115	123	138	135	133	127	121	118	110	89	67	52	42	46	43	45
9	46	31	44	44	43	36	37	66	111	138	144	140	127	118	121	111	88	84	67	52	36	42	A	A
10	A	A	A	A	41	40	37	68	106	138	137	141	133	125	136	118	90	97	86	25	41	A	A	46
11	A	28	42	40	35	38	46	70	121	130	153	141	137	136	127	112	90	A	55	49	44	A	53	A
12	A	51	37	25	A	34	A	A	80	109	106	106	111	112	111	106	86	80	63	44	38	62	30	53
13	44		A	A	30			70	115	120	138	134	116	118	116	116	87	116	A	46	32	30	43	36
14	43	44	35	37	36	64	47	63	90	120	141	133	121	121	105	104	90	90	86	52	44	50	30	
15	32	30		30	35	35		52	101	124	127	117	114	111	103	107	90	78	67	54	34	37	35	A
16	34	34	37		31	N	31	59	102	116	137	121	111	87	111	88	76	84	82	52	35	A	A	A
17	34	31		35		31	34	52	102	120	116	120	102	105	111	108	90	84	78	52	50	62	40	
18	43	50	51	47	40	35	31	57	90	108	N	121	117	106	106	90	87	64	63	44	37	35	34	32
19	35	N	34	33	36	37	36	51	84	111	112	116	97	103	94	84	65	70	52	N	40	41	41	38
20	37	37	A	35	37	35	30		90	115	138	112	110	103	108	91	74	78	68	40	35	29	34	N
21	45	44	38	46	28	32	34	58	97	112	127	116	107	110	90	92	80	42	48	44	38	35	37	36
22		A	A		37	30	32	63	96	127	138	137	120	112	107	90	84	79	54	50	41	35	41	A
23	A	44	89	37	32	34	41	63	87	124	127	121	108	108	108	90	81	86	51	A	A	A		A
24	34	38	38	41	37	26	30	58	86	118	137	131	111	97	102	103	78	67	55	48	41	43	A	38
25	38	38	38	40	37	40	41	54	80	112	130	121	113	112	106	103	90	78	66	63	47	42	49	46
26	48		A	43	49	43	38	61	78	108	135	122	110	108	100	97	97	83	55	62	46	43	47	43
27	42	43	40	43	37	35	42	72	88	116	127	130	116	110	112	120	109	86	51	50	54	66	66	56
28	50	44	47	47	48	46	56	82	86	113	130	131	120	114	120	108	104	100	87	80	52	63	62	52
29	57	57	61	54	31	35	41	84	108	130	140	138	127	118	119	111	90	90	87	62	72	52	58	54
30	43	42	44	47	44	34	36	70	111	138	144	140	138	127	126	130	112	110	104	89	79	61	62	56
31	66	63	57	59	52	53	62	84	112	141	146	138	134	126	115	116	107	96	87	87	86	53	52	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	24	25	23	26	29	25	25	29	31	31	30	31	31	31	31	31	31	30	30	29	30	27	26	21
MED	43	42	42	40	37	35	37	64	102	120	137	131	120	114	112	106	90	84	67	52	42	43	43	43
U Q	44	44	48	46	41	40	42	70	109	130	140	135	127	124	121	115	97	90	86	62	49	52	52	52
L Q	36	35	38	35	35	34	33	58	88	115	127	121	111	108	106	92	86	79	55	47	36	37	35	37

HOURLY VALUES OF FES AT AKITA

JAN. 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	34	27	G	G	G	G	G	42	G	G	G	G	40	G	G	G	G	G	G	G	G	G	32	31
2	G	G	G	G	G	G	G	G	G	37	G	G	G	G	44	G	31	G	G	G	G	G	G	30
3	28	G	28	26	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G	G	G	G	G
4	42	40	32	25	G	G		G	G	G	50	43	43	45	44	55	40	30	G	G	G	G	G	G
5	G	G	G	28	G	G		G	G	37	40	43	G	39	G	G	G	G	G	G	G	G	G	G
6	G	G	27	G	G	25		23	G	37	40	41	46	42	G	46	37	47	27	G	G	G	G	G
7	G	G	G	G	G	G	G	23	37	G	39	41	40	40	G	41	33	G	28	G	G	G	29	G
8	G	G	G	G	G	G	G	G	G	37	40	41	G	G	50	G	G	27	25	G	G	G	G	G
9	G	G	G	G	G	G	G	G	G	44	51	91	116	61	58	G	G	30	G	35	G	29	33	36
10	45	30	59	31	G	G	G	G	G	41	G	G	G	G	G	G	G	32	G	30	28	33	30	41
11	37	31	27	G	G	G	31	G	G	47	62	58	48	76	61	G	57	142	G	G	G	33	59	49
12	45	G	G	44	37	G	37	72	59	G	G	G	43	G	G	G	29	30	G	G	G	G	28	G
13	G	G	36	37	G			G	G	40	G	G	51	47	G	G	G	30	41	29	G	G	G	G
14	G	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
15	G	G		G	G	G		28	G	G	G	G	49	50	46	48	G	40	33	G	G	G	G	33
16	G	G	G	G	G	G	G	G	G	G	40	G	G	G	44	37	G	27	G	28	G	24	33	30
17	G	25	G	G		G	G	G	G	41	56	44	42	G	G	44	G	G	G	28	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	41	50	50	42	G	G	G	G	27	30	G	G	G	25
19	30	G	G	G	G	G	G	G	G	G	G	49	42	59	42	38	G	34	G	G	G	G	G	G
20	G	27	30	G	G	28	26		G	40	39	42	50	50	50	52	G	G	G	G	G	G	G	G
21	G	G	G	G	27	G	G	G	G	G	G	G	50	51	G	36	G	G	G	G	G	29	G	G
22		33	28	G	G	G	G	G	G	41	58	G	G	G	G	G	G	G	G	G	G	27	G	28
23	29	32	G	28	G	G	G	G	G	G	G	G	G	G	G	67	51	44	44	51	40	28	G	28
24	G	G	G	G	G	G	G	G	G	G	G	G	43	55	G	G	31	G	26	28	G	38	40	28
25	G	G	G	G	G	G	G	G	37	38	43	G	G	G	40	42	G	39	40	40	G	G	G	30
26	28		26	28	28	G	G	G	G	G	40	G	G	41	40	G	G	29	G	G	G	G	G	G
27	29	G	G	G	G	G	G	G	G	G	40	G	G	40	G	G	G	G	G	G	G	G	G	G
28	G	G	25	29	28	G	G	G	G	40	40	G	44	43	G	G	G	G	G	G	G	G	G	G
29	36	G	G	G	G	G	G	G	34	43	41	G	G	49	40	36	G	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	41	41	G	G	G	G	G	34	G	26	G	G	G	G
31	G	G	G	G	G	G	G	G	34	40	52	44	G	G	G	G	G	G	G	G	G	G	G	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	30	30	30	31	30	30	26	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30
MED	G	G	G	G	G	G	G	G	G	G	40	G	40	40	G	G	G	27	G	G	G	G	G	G
U Q	29	27	27	26	G	G	G	G	G	40	41	43	46	49	44	41	29	32	26	28	G	24	28	30
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

HOURLY VALUES OF FMIN AT AKITA

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

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT KOKUBUNJI

JAN. 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	37	41	40	46	45	45	44	77	108	118	135	136	141	125	128	118	114	90	81	67	60	56	49	52
2	47	50	52	43	32	37	35	76	120	113	137	137	128	117	125	120	113	82	85	74	67	60	61	74
3	43	41	56	41	41	40	41	76	120	118	130	125	134	127	123	121	106	97	80	54	54	48	49	47
4	48	44	50	56	42		28	72	99	124	135	135	123	124	120	110	103	94	97	60	40	38	49	50
5	46	48	42	36	43	35	26	66	102	124	132	132	131	122	128	117	112	101	96	76	56	46	56	53
6	40	43	44	42	33	37	38	74	114	137	151	142	125	127	127	114	96	91	86	63	46	48	46	40
7	41	49	38	41	41	43	37	74	114	141	134	115	104	102	110	112	98	92	72	66	47	56	A	44
8	55	50	49	42	49	41	36	77	122	134	137	133	141	133	126	122	109	104	73	63	63	59	A	53
9	50	52	47	47	41	43	45	77	114	140	148	140	131	125	127	113	100	90	78	54	46	47	A	37
10	38	41	42	A	38	43	42	79	114	129	141	141	140	132	137	132	116	100	104	80	58	61	50	50
11	48	48	43	37	41	38	51	87	121	131	148	144	141	131	130	120	108	104	83	60	60	55	66	52
12	57	48	44	37	40	39	38	86	106	142	141	126	132	134	132	122	94	80	71	55	50	A	43	48
13	55	28	A	29	27	28	27	74	124	136	144	134	127	117	131	125	112	114	99	78	57	52	53	51
14	53	54	47	37	36	47	56	66	101	135	137	137	122	120	120	110	104	103	97	70	52	41	36	34
15	34	42	35	34	35	34	35	54	102	138	130	113	115	121	123	117	106	83	71	74	47	49	A	37
16	36	31	35	41	30	34	35	63	113	116	134	143	117	112	A	123	107	92	84	78	45	37	38	41
17	47	A	37	35	34	34	35	56	105	125	128	108	104	100	111	113	100	91	82	62	58	44	46	48
18	49	59	40	49	44		37	74	93	114	130	121	112	106	106	106	90	78	63	51	56	38	A	A
19	37	37	38	32	31	38	43	66	84	104	118	114	96	102	100	92	73	66	68	68	55	56	44	40
20	41	38		38	32	35	37	70	85	115	135	130	118	121	127	117	104	76	80	67	53	46	46	47
21	48	46	38		25	31	31	64	97	125	128	125	117	115	102	97	82	75	70	50	51	44	47	38
22	42	41	42	35	37	40	38	72	105	114	141	131	133	112	116	108	93	84	71	74	57	47	46	A
23	41	48	48	A	A	28	34	81	94	118	133	128	123	113	117	108	90	87	77	56	40	38	41	44
24	35	32	50	41	30	30	31	74	86	110	135	140	128	107	101	105	86	71	58	60	51	54	51	51
25	47	45	43	49		36	37	75	78	102	128	131	126	124	117	108	97	86	71	61	58	56	57	52
26	51	48	53	42	40	51	43	76	84	102	125	131	117	112	106	100	100	94	66	68	51	49	50	48
27	46	44	44	44	26	33	44	88	96	104	124	127	117	111	110	118	116	88	67	62	64	72	72	56
28	57	55	48	50	41	48	48	88	106	112	126	122	115	116	116	111	106	103	96	84	73	56	60	57
29	60	51	54	52	34	42	56	88	112	125	143	141	129	128	127	123	105	104	94	90	90	81	60	54
30	53	A	54	46	46	36	34	89	108	131	136	140	137	121	121	120	113	110	105	102	91	73	72	74
31	73	74	75	57	55	52	72	92	122	137	138	140	133	121	113	115	111	105	96	96	97	84	62	66
	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	29	29	28	29	29	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	30	26	29
MED	47	46	44	42	38	38	37	75	106	124	135	132	126	121	120	115	104	91	80	67	56	50	50	50
U Q	53	50	50	46	41	43	44	81	114	135	141	140	133	125	127	120	111	103	96	76	60	56	60	53
L Q	41	41	40	37	32	34	35	70	96	114	130	125	117	112	111	108	96	83	71	60	50	46	46	42

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT KOKUBUNJI

JAN. 1992

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	26	G	G	G	G	24	28	52	G	40	G	G	44	G	G	G	G	G	G	G	G	G	33
2	33	G	G	G	G	G	G	G	34	40	42	43	53	49	G	47	55	59	G	G	G	G	G	G
3	G	25	G	G	G	G	26	G	G	59	G	G	G	43	G	37	G	41	29	G	G	G	G	G
4	G	32	26	G	26		G	28	34	38	44	57	45	43	G	G	95	24	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	33	38	44	44	G	44	40	G	G	24	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	44	43	46	46	47	56	48	46	G	25	25	G	G	G	G
7	G	G	G	G	G	G	G	G	33	G	G	42	43	43	G	G	50	39	40	26	G	26	54	38
8	G	G	G	G	G	G	G	G	32	37	40	43	G	G	59	G	44	36	30	G	G	27	33	G
9	G	G	G	G	G	G	G	G	G	G	54	121	61	49	50	G	G	G	G	G	39	41	40	36
10	43	32	43	59	26	25	G	G	G	43	47	G	G	G	G	G	G	32	G	25	24	26	31	27
11	32	26	G	G	G	G	G	G	G	G	G	81	85	106	44	42	47	60	59	41	34	33	G	G
12	G	G	30	G	30	26	G	60	77	55	G	G	44	G	G	G	N	34	G	G	29	30	29	28
13	26	28	24	G	26	G	G	G	33	48	46	58	49	49	44	41	79	34	40	30	65	G	G	G
14	G	G	G	G	G	G	G	G	G	40	40	G	G	G	G	G	G	G	G	G	G	G	26	G
15	G	G	G	G	G	G	G	G	34	40	G	G	43	G	48	62	G	G	40	37	26	28	29	G
16	G	G	G	G	G	G	G	36	32	38	47	51	48	93	152	77	45	G	35	36	30	25	25	24
17	30	36	26	26	G	G	G	36	G	38	48	61	43	43	G	G	G	G	G	G	G	G	29	G
18	G	G	G	G	G	G	G	26	G	G	52	51	48	G	G	G	G	G	G	G	26	G	29	30
19	G	G	G	G	G	G	G	G	36	37	46	48	58	50	G	43	44	G	G	G	G	G	G	G
20	G	G		24	26	23	26	29	33	G	50	G	43	49	62	54	51	47	32	G	G	G	G	G
21	G	G	G		G	G	G	G	G	43	40	G	53	52	67	40	43	40	40	G	26	G	G	G
22	G	G	G	28	24	G	G	G	47	G	G	G	G	G	58	G	G	24	28	G	G	32	31	40
23	G	38	26	34	32	G	G	G	G	G	G	45	G	44	G	G	47	92	40	32	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	49	G	G	G	38	G	26	26	29	27	G	G	40
25	34	G	G	26		24	G	28	G	41	45	44	44	G	43	52	32	36	35	36	33	29	26	G
26	G	G	G	G	G	G	G	28	33	G	42	48	46	G	G	37	33	27	24	G	35	G	G	G
27	G	G	G	G	G	G	G	29	35	G	55	44	G	42	G	G	33	29	G	G	G	G	G	G
28	G	G	G	G	G	G	G	28	G	44	46	43	45	44	55	G	G	G	G	G	G	G	G	G
29	G	33	33	27	G	G	G	G	38	49	49	49	52	45	42	37	G	G	G	G	G	G	G	G
30	G	32	26	G	G	G	G	G	33	G	41	43	48	44	44	G	34	31	24	26	32	25	G	G
31	G	G	G	G	G	G	G	G	G	38	43	48	50	G	43	38	65	G	G	G	G	G	G	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	30	30	30	30	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	32	38	43	44	44	43	40	G	33	26	24	G	G	G	G	G
U Q	G	26	24	G	G	G	G	28	34	43	47	49	49	49	50	42	47	36	35	26	29	26	29	27
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 KOKUBUNJI

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

HOURLY VALUES OF FOF2 AT YAMAGAWA

JAN. 1992

LAT. 31.2N LON. 130.6E 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	45	52	43	41	41	35	40	53	96	118	127	138	138	134	130	127	130	124	90	87	90	90	80	61
2	54	52	42	35	26	29	29	58	111	116	117	136	137	133	118	125	117	104	102	106	103	86	78	84
3	82	60	34	38	41	34	32	54	109	127	128	133	145	139	138	137	132	122	108	88	83	78	58	49
4	44	44	60	62	54			56	90	111	134	141	134	136	125	120	117	110	103	85	58	53	52	66
5	63	50	52	40	42	51	65	50	100	105	120	137	132	121	119	120	120	124	104	101	87	78	66	60
6	41	42	50	42	31	27	68	48	88	122	153	152	132	127	131	124	117	111	104	90	86	67	52	52
7	71	51	49	32	38		67	52	88	128	135	125	121	116	122	121	115	97	94	85	66	64	74	42
8	43	54	68	47	48	41	44	61	111	131	138	145	153	157	150	145	138	120	107	90	85	66	62	54
9	53	57	66	53	42	71	43	52	86	128	148	148	141	139	137	131	121	118	101	73	66	A	A	61
10	30	46	50	38	40	34	68	54	98	124	132	137	148	141	141	138	136	130	126	138	105	86	84	65
11	52	A	A	51	54	45	53	72	97	128	164	160	146	130	137	134	124	122	111	82	100	88	81	86
12	83	72	49	A	40	31	49	51	120	156	167	144	152	155	151	150	126	109	110	86	81	66	60	64
13	63	45		26	36	36	N	51	111	140	161	158	142	135	146	143	129	124	130	121	111	86	78	72
14	66	66	67	50	43	51	53	63	90	120	150	142	144	139	150	141	122	108	117	108	82	63	40	A
15	42	63		37	48	42	64	32	88	132	145	124	130	135	143	138	132	122	102	86	78	63	52	62
16	68	66	40	46		31	36	46	104	122	131	141	148	143	155	168	170	160	142	143	131	77	61	64
17	63	86	A	22	33	A	42	53	88	128	125	111	112	110	111	117	105	103	104	85	87	54	52	76
18	63	52	45	71	70	38	35	53	92	111	127	131	127	107	103		117	96	84	78	78	62	50	50
19	40	69	51	51	65	66	62	60	80	90	98	102	110	95	107	104	96	77	81	86	86	64	53	53
20	53	N	36	31	66	67	34	53	91	107	117	134	136	138	143	156	140	128	122	111	121	88	66	55
21	53	51	54	32	46	26	46	71	90	125	127	130	132	122	110	103	106	98	78	80	87	87	82	64
22	40	53	60	43	30	45	31	44	102	108	122	147	142	141	143	144	145	137	121	122	128	86	84	72
23	72	62	44	40	30	30	56	42	90	108	127	142	146	133	136	126	135	123	108	106	86	74	46	62
24	52	50	52	53	38	A		42	86	97	121	144	142	130	125	125	134	120	90	80	87	78	66	66
25	65	50	53	52	40		31	58	90	105	116	128	135	145	158	163	160	142	109	86	87	84	72	63
26	49	26	50	38	50		28	54	99	97	107	122	130	132	132					86	85	84	64	62
27	49	38	54	38	49	51	29	59	86	107	117	128	130	121	128	131	125	103	104	90	86	102	87	66
28	61	52	47	54	47	67	37	66	112	131	117	121	127	127		111	105	108	108	90	91		64	
29	72		49	42		38	67	58	108	128	140	146	147	147	156	163	156	167	170	146	132	110		85
30		63	60	62	51	A	30	52	104	110	112	137	132	125	118	115	120	109	114	111		87	83	77
31	73	61	52	52	53	37	40	66	105	131	142	146	120	123	122		121		116	111	103	106	84	77
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	28	27	30	29	24	28	31	31	31	31	31	31	31	30	28	30	29	30	31	30	29	29	29
MED	54	52	50	42	42	38	42	53	96	122	127	137	136	133	134	131	124	120	108	90	87	78	66	64
U Q	66	62	54	52	50	51	59	59	105	128	142	145	145	139	143	143	135	124	116	111	103	87	80	72
L Q	45	50	45	38	38	32	33	51	88	108	117	128	130	123	122	120	117	106	102	85	83	65	52	57

HOURLY VALUES OF FES AT YAMAGAWA

JAN. 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	G	G	G	G	43	40	40	G	G	G	46	43	G	G	G	G	G	G	G	G
2	G	31	28	G	G	G	G	G	G	G	G	G	G	42	G	42	G	G	G	G	G	G	G	G
3	G	G	G	G	G	G	G	G	G	G	G	55	45	G	60	40	G	G	G	G	G	G	G	G
4	G	G	G	G	G			G	G	37	41	47	46	56	46	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	G	40	44	G	45	48	44	G	29	24	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	41	43	49	45	43	40	39	30	28	25	24	G	G	G
7	G	G	G	G	G		G	G	G	39	42	42	G	G	G	G	43	36	27	39	G	G	24	G
8	G	G	G	G	G	G	G	G	G	G	42	G	G	48	43	50	62	35	40	30	G	G	24	28
9	G	23	G	G	G	G	G	G	G	G	45	46	G	49	44	40	G	32	G	51	57	64	69	48
10	29	34	28	29	G	G	29	30	48	G	G	G	47	G	G	G	36	G	34	40	31	31	43	30
11	40	69	69	G	G	26	G	G	G	G	46	G	43	52	44	45	39	47	68	81	91	80	60	59
12	34	G	G	25	G	24	G	G	38	69	86	66	66	52	48	G	39	40	G	29	32	28	26	G
13	G	G	G	G	G	G	G	G	30	43	44	49	54	48	G	G	52	G	28	40	29	G	G	G
14	G	G	G	G	G	G	G	G	G	G	42	44	G	G	G	G	G	G	G	24	G	39	G	31
15	G	G	G	G	G	G	G	G	30	G	G	G	43	G	43	41	41	G	40	G	G	G	G	24
16	G	G	G	G		G	G	G	G	G	46	52	52	46	G	40	G	34	G	33	26	G	24	34
17	42	30	32	40	27	39	G	26	41	41	47	49	45	46	47	42	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	47	46	55	44		G	G	29	35	46	G	30	G
19	G	24	G	G	G	G	G	G	33	G	47	45	49	45	53	43	69	45	30	G	G	G	G	G
20	G	G	G	G	G	G	G	G	G	36	43	49	46	54	G	42	G	G	G	34	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	40	49	50	61	60	42	40	34	58	37	G	G	G	G
22	G	G	G	G	G	G	28	G	G	G	44	45	46	G	42	40	36	G	29	26	37	30	G	G
23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	44	31	G	27	G	G	24	G
24	G	G	G	G	G	25		G	G	G	43	47	49	G	G	41	G	G	G	G	G	G	G	G
25	G	30	31	27	G		G	G	30	G	48	44	45	46	58	61	G	G	G	G	G	G	37	38
26	28	31	G	31	G	G	27	G	G	G	42	42	43	G	G					25	30	G	G	G
27	G	G	G	G	G	G	G	G	32	G	41	51	51	43	47	43	40	G	29	40	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G	40	G	43	48		G	44	G	26	G	24		G	
29	G		G	30		24	24	G	G	G	G	61	51	G	44	44	40	37	40	G	39	34	G	G
30		G	G	G	G	36	27	G	G	38	G	43	44	51	44	G	40	G	25	25		G	G	G
31	G	G	G	G	G	G	G	G	G	G	G	G	44	G	G		G	G	G	G	G	G	G	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	30	30	31	31	29	28	29	31	31	31	31	31	31	31	30	28	30	30	30	31	30	30	31	30
MED	G	G	G	G	G	G	G	G	G	G	41	44	45	45	44	41	36	G	24	25	G	G	G	G
U Q	G	23	G	G	G	G	G	G	30	36	44	49	49	49	47	43	40	34	29	35	30	G	24	24
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

JAN. 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	15	15	15	15	17	18	38	40	44	34	34	33	23	15	15	15	15	15	15
2	15	15	15	15	15	15	16	15	15	22	35	29	34	34	32	24	22	24	15	15	15	15	15	15
3	15	16	15	15	15	15	16	15	16	18	36	27	27	33	26	23	17	24	15	15	15	15	15	15
4	15	15	15	15	15			16	15	16	18	24	34	26	22	26	20	17	15	15	15	15	15	15
5	15	15	15	15	15	17	15	15	16	18	17	38	44	27	26	21	16	15	15	15	15	15	15	15
6	15	15	15	15	15	15	15	15	18	16	17	17	28	24	22	18	15	16	16	15	17	15	15	15
7	16	15	15	15	15		15	15	16	16	16	18	23	22	23	16	15	15	15	15	15	15	16	15
8	15	15	15	15	15	15	15	16	15	17	22	22	39	23	24	21	16	15	15	15	15	15	15	15
9	15	15	16	15		15	15	15	15	16	16	21	23	34	26	21	18	16	15	16	15	16	15	15
10	15	15	15	15	15	15	15	15	26	17	20	38	36	38	36	36	21	16	15	15	15	15	15	15
11	15	15	15	15	15	15	15	15	28	18	22	36	33	34	34	26	22	16	15	15	15	15	15	15
12	15	16	15	15	16	16	15	16	16	18	24	34	28	24	26	34	20	18	16	15	16	16	16	15
13	16	15		15	15			15	16	20	26	29	35	32	38	35	22	16	15	15	15	15	15	15
14	15	15	15	15	15	15	15	15	15	20	21	24	39	29	36	24	33	23	15	16	15	15	15	16
15	15	15		15	15	15	15	16	15	17	20	24	28	40	24	27	17	18	15	15	16	15	15	15
16	16	15	15	15		15	15	15	17	16	17	18	27	27	26	20	18	15	15	15	15	15	15	15
17	15	15	15	15	15	15	15	16	16	16	17	24	24	21	27	21	17	24	15	15	15	15	15	16
18	15	15	15	15	15	15	15	15	15	16	20	24	38	32	22		17	15	16	15	15	15	15	15
19	15	15	15	15	15	15	15	15	15	20	24	34	35	32	29	22	18	15	15	15	15	15	17	15
20	15	15	15	15	15	15	15	16	17	16	17	22	24	27	23	21	17	15	15	15	15	15	15	15
21	15	15	15	15	15	15	15	15	24	16	17	23	24	21	23	23	16	16	15	15	15	15	15	15
22	15	15	15	15	15	15	15	15	16	17	20	24	23	27	21	18	17	16	15	16	15	15	15	15
23	15	15	15	15	15	15	15	16	16	17	24	21	39	24	35	22	18	15	15	15	15	15	15	15
24	15	15	15	15	15	17		15	23	17	21	23	28	27	24	18	17	15	15	15	15	15	15	15
25	15	15	15	15	15		15	16	16	17	20	24	23	23	21	18	16	15	16	15	15	15	15	16
26	15	15	15	15	15	16	16	15	16	23	21	38	26	22	18					15	15	15	15	15
27	15	15	15	15	18	15	15	15	15	17	18	21	23	34	35	24	20	17	15	15	15	16	15	15
28	15	15	15	15	15	15	15	16	15	16	17	21	22	20			15		17	16	15		15	
29	15		15	15		15	15	16	18			32	27	14	23	21	15	15	15		15	15		15
30		15	16	15	15	15	15	16		17		23	35	23	22	20	16	27	16	16		15	15	15
31	15	16	15	15	15	17	15	17	29	18	21		38	30	39		15		17	15	15		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	30	29	31	28	27	28	31	30	30	29	30	31	31	30	27	30	28	30	30	30	29	30	30
MED	15	15	15	15	15	15	15	15	16	17	20	24	28	27	26	22	17	16	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	16	17	18	22	32	36	33	34	26	20	18	15	15	15	15	15	15
L Q	15	15	15	15	15	15	15	15	15	16	17	22	24	23	23	20	16	15	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FOF2 AT OKINAWA

JAN. 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																								
2																								
3																								
4																						84	66	65
5	82	52	52	44	32	32		32	111	105	118	128	131	133	121	132	143	142	111	120	131	110	86	N
6	72	34	37	52	32	N	N	32	85	111	146	146	146	146	146	146	147	146	145	130	146	131	87	88
7	85	54	54	A	A	37	A	31	86	117	124	124	121	124	143	131	121	118	110	90	87	86	77	53
8	54	53	52	35	A	N	37	62	111	132	144	146	160	146	152	148	146	146	122	110	108	87	66	66
9	45	63	67	55	31	N	37	62	86	130	145	146	147	150	152	146	160	146	112	107	107	90	76	62
10	A	A	66	30	A	A	A	42	88	120	133	125	144	150	146	163	159	145	144	138	160	146	128	87
11	86	87	84	43	A	46	42	78	90	121	159	154	144	143	132	143	121	121	128	108	146	131	90	110
12	86	86	54	32	34	37	47		125	170	171	147	146	161	171	167	159	146	110	125	108	90	83	87
13	78	44	31	31	35		32		110	140	155	136	147	146		162	159	152	146	162	184	145	130	128
14	108	77	82	79	48	54	66	80	110	124	144	145	148	157	160	161	158	158	146	146	121	84	54	54
15	43	38	32	46	56																			
16										146	142	132	143	156	157	170	161	160	161	147	161	143	107	104
17	88	107	86	66	46	N	43	31	83	142	105	111	118	124	111	111	112	111	99	87	88	86	84	72
18	66	55	56	43	44	30		30	103	111	133	132	132	127	131	130	141	131	111	107	108	111	108	83
19	58	N	30	47	36	37	29	52	88	90	90	101	111	108	111	124	117	117	104	108	108	108	86	66
20	66	55	30	30	32		30	44	90	118	123	131	158	157	158	156	159	159	146	121	131	N	88	81
21	71	66	36	32	30	N		38	87	145	124	124	141	139	121	118	120	118	99	90	127	168	128	110
22	84	55	53	53	42	A	15	37	107	111	117	148	146	157	152	154	158	159	145	146	150	146	107	109
23	85	87	66	46	46		N	32	90	122	119	133	150	170	159	148	N	153	131	137	131	122	88	86
24	86	67	66	73	43	A	A	32	86	111	112	137	156	161	150	146	153	162	144	110	108	107	108	86
25	80	54	54	54	32	29		32	96	128	123	130	152	143	146	150	146	146	146	130	120	120	103	88
26	66	66	66	61	47	N	N	N	108	124	95	106	124	146	146	146	144	121	144	109	110	131	108	88
27	87	66	65	52	38	N	26	54	105	122	120	122	131	131	146	145	147	121	146	146	146	146	145	108
28	86	66	54	34	48	29	25	70	108	131	130	112	132	130	121	121	115	120	120	122	131	130	88	86
29	87	86	40	44	36	N	37	43	104	131	146	146	135	161	168	132	147	122	173	169	143	146	162	131
30	110	110	86	66	62	31	N	37	105	121	111	130	130	128	121	110	118	120	111	108	110	110	108	88
31	84	54	54	43	52	25		54	91	131	144	143	121	121	132	121	122	130	146	146	142	170	145	111
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	26	25	22	11	13	22	25	26	26	26	26	26	25	26	25	26	26	26	26	26	27	26
MED	84	64	54	46	40	32	37	40	96	123	127	132	144	146	146	146	146	144	138	122	129	121	90	87
U Q	86	81	66	54	47	37	42	54	108	131	144	146	147	157	154	154	158	152	146	146	146	145	108	108
L Q	66	54	40	34	32	29	27	32	87	117	118	124	131	130	126	130	121	121	111	108	108	90	84	72

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FES AT OKINAWA

JAN. 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																								
2																								
3																								
4																						G	G	G
5	G	G	G	G	G	G		G	G	37	G	83	G	45	45	43	40	33	30	G	G	G	G	G
6	G	G	G	G	G	G	G	G	33	G	40	61	59	51	44	G	37	G	G	G	G	28	38	30
7	G	G	G	36	34	29	24	G	30	36	45	44	44	50	G	45	64	91	37	35	G	G	G	G
8	G	G	G	G	34	G	G	G	G	G	G	G	G	52	45	42	G	51	44	34	30	24	24	G
9	24	G	G	G	G	G	G	G	32	37	45	56	51	G	60	G	38	G	33	38	32	40	45	24
10	87	60	53	34	58	38	32	G	33	38	40	49	47	47	65	66	84	39	41	39	36	G	G	G
11	G	G	G	32	68	26	G	24	G	36	51	70	62	44	61	G	G	37	39	83	23	110	37	G
12	28	G	G	G	G	G	G		G	38	57	65	116	58	44	41	G	43	40	34	33	25	24	G
13	G	G	G	G	G	G	G	G	G	G	42	54	G	45		53	39	G	G	G	G	G	G	G
14	G	G	G	G	G	G	G	G	G	39	44	43	G	G	G	42	G	G	37	24	G	G	G	G
15	G	G	G	G	G																			
16										38	44	52	56	51	51	46	38	G	G	30	37	G	45	93
17	58	38	32	24	G	G	G	G	G	38	51	44	52	59	50	44	G	G	29	25	G	G	G	G
18	G	G	G	G	G	G	G	G	G	38	45	84	55	61	58	46	G	33	37	60	34	28	24	40
19	27	G	G	G	G	G	G	G	32	39	44	51	58	63	56	51	38	35	33	28	G	G	G	G
20	G	G	G	G	G		G	G	G	38	41	43	G	50	50	42	G	G	G	33	G	G	G	G
21	G	G	G	G	G	G		G	G	G	76	55	63	56	57	61	60	60	G	G	G	27	G	G
22	G	G	G	G	G	11	32	G	G	G	G	48	52	59	84	72	43	36	29	26	30	34	24	G
23	36	34	G	G	G		G	G	G	37	G	50	52	58	54	50	G	42	37	33	40	29	G	G
24	G	G	G	G	G	25	33	G	G	G	44	51	G	G	G	42	40	G	G	G	30	28	25	G
25	G	G	G	G	G	G	G	25	G	40	G	51	G	50	51	G	39	33	33	31	54	35	G	G
26	G	G	G	G	27	23	G	G	G	G	43	52	44	50	51	42	40	41	G	G	24	24	G	G
27	G	G	G	G	G	G	G	G	G	37	G	51	55	49	G	42	G	34	G	G	26	32	32	26
28	G	G	G	G	G	G	G	G	G	42	40	50	G	44	82	81	41	38	37	G	G	25	G	G
29	G	G	G	G	G	G	G	G	34	38	50	80	66	64	81	70	79	70	70	38	G	27	G	G
30	G	G	G	G	G	G	G	G	32	38	41	57	63	51	G	G	G	G	G	G	G	G	G	G
31	G	G	G	G	G	G	G	G	G	38	43	44	51	G	45	45	G	35	G	G	G	G	G	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	26	26	26	26	23	23	24	25	26	26	26	26	26	25	26	26	26	26	26	26	27	27	27
MED	G	G	G	G	G	G	G	G	G	38	43	51	52	50	51	44	38	34	32	27	12	24	G	G
U Q	G	G	G	G	G	11	G	G	31	38	45	57	58	58	59	51	40	41	37	34	32	28	24	G
L Q	G	G	G	G	G	G	G	G	G	G	40	48	G	45	44	42	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF FMIN AT OKINAWA

JAN. 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																								
2																								
3																								
4																						17	16	17
5	16	16	16	16	16	16		16	17	21	23	29	45	29	32	26	21	16	16	16	15	16	16	16
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15	21	15	16	15	15																			
16										17	18	26	30	30	33	24	16	18	20	16	16	17	15	16
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MED	16	16	15	15	15	16	17	16	17	18	22	26	29	30	28	24	20	17	16	15	16	16	16	16
U Q	16	16	16	16	16	17	19	16	27	21	24	29	32	30	30	27	21	18	20	16	16	16	16	16
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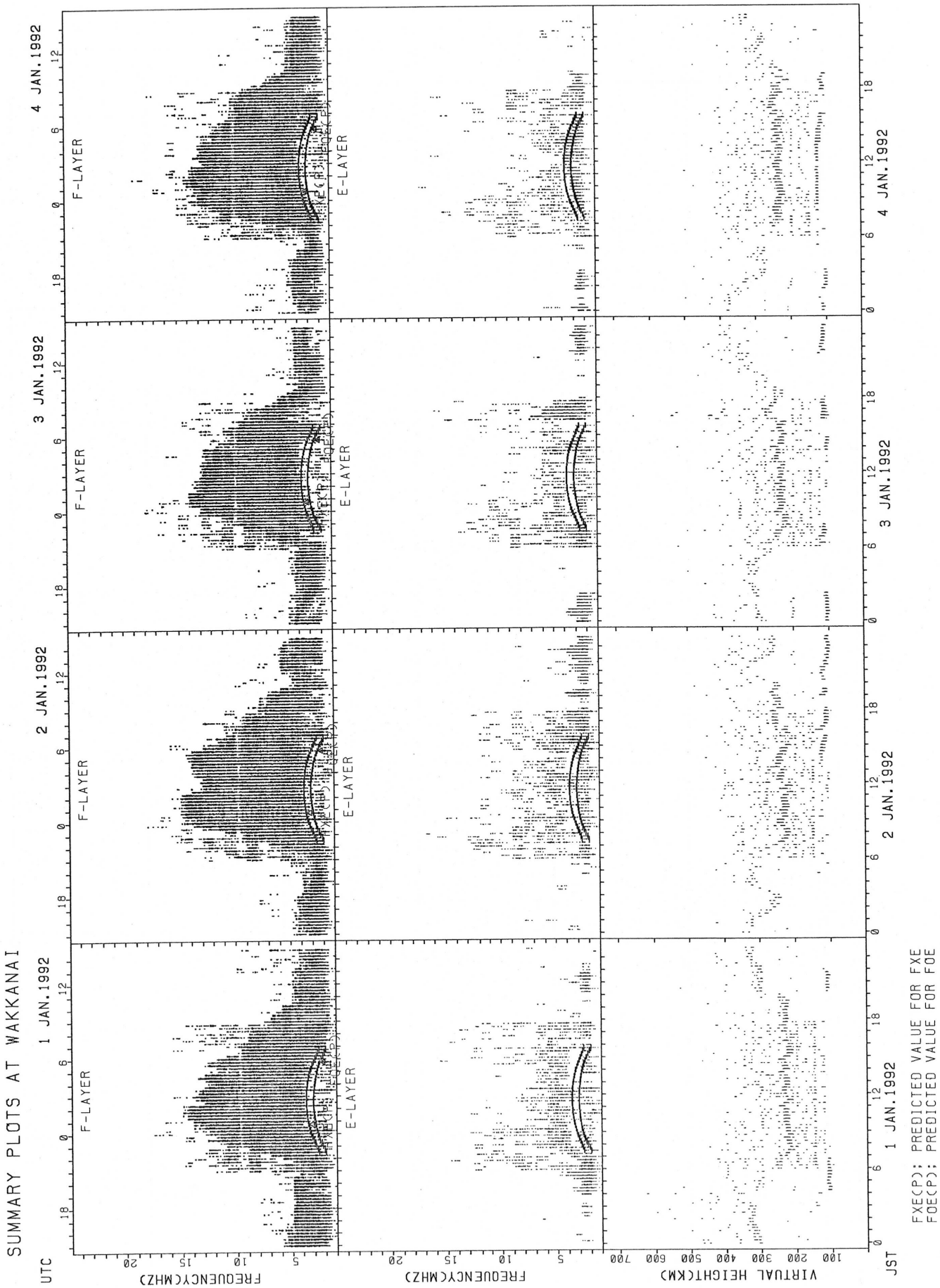
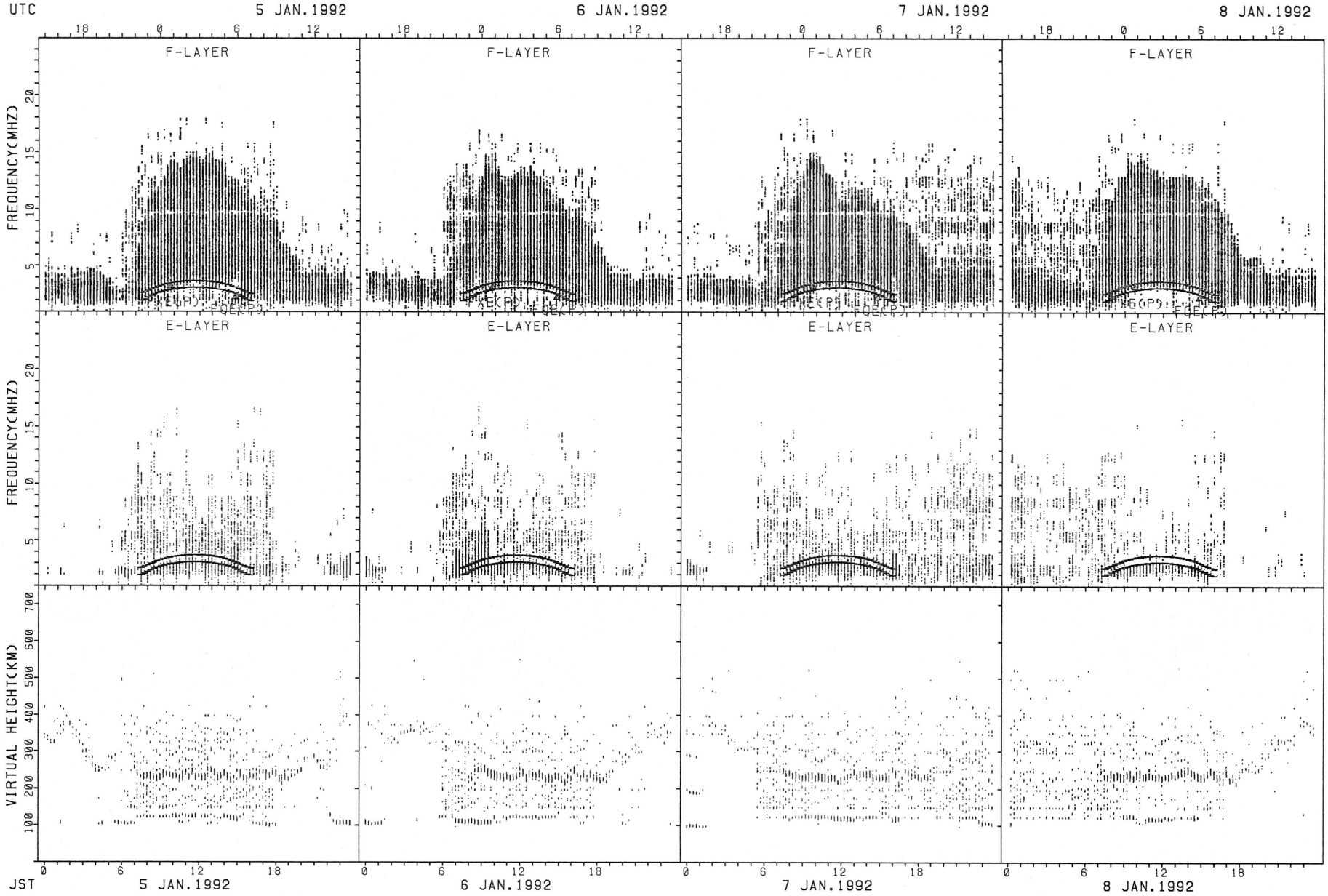
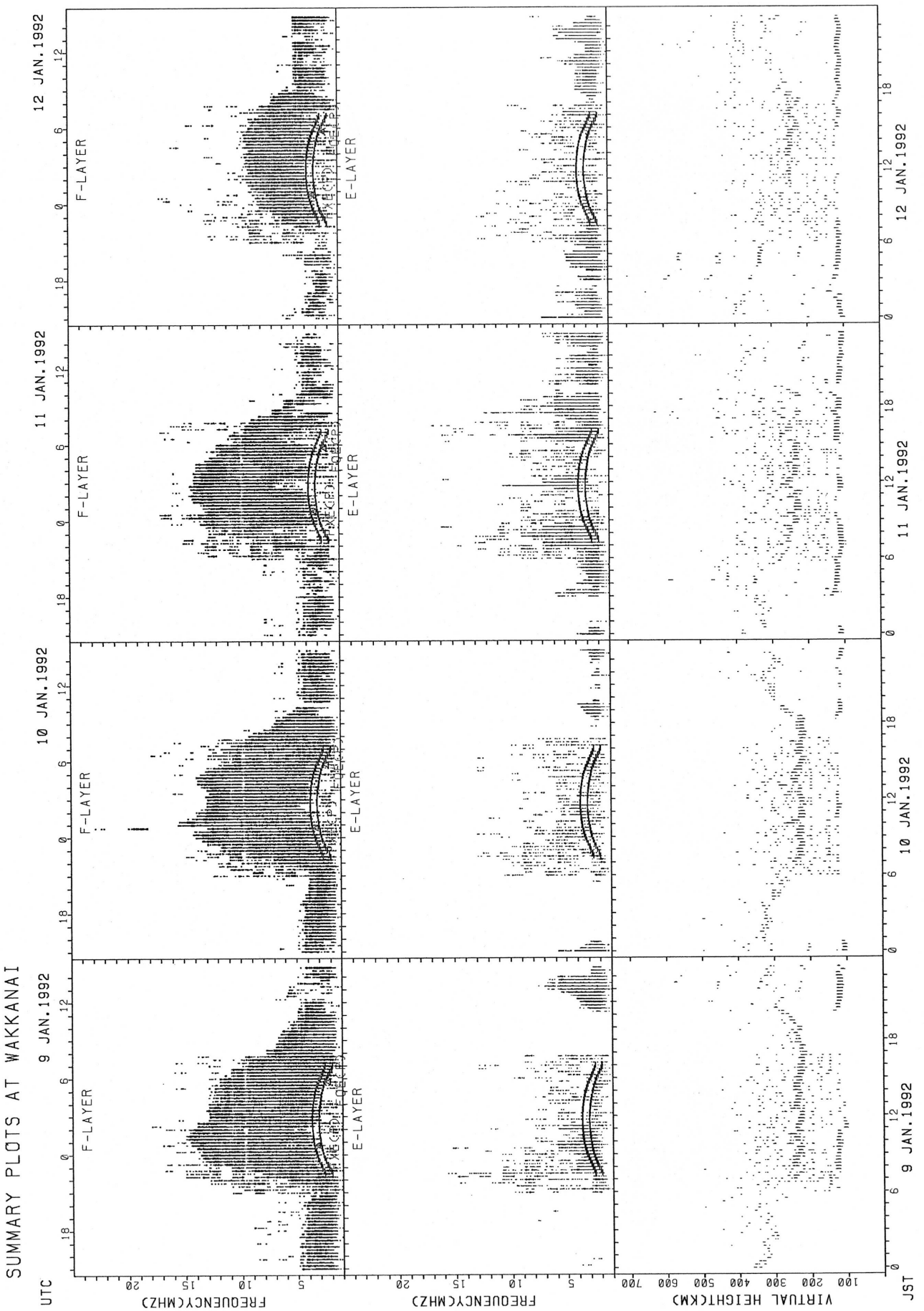

SUMMARY PLOTS AT WAKKANAI
1 JAN.1992
2 JAN.1992
3 JAN.1992
4 JAN.1992
UTC
JST
F-LAYER
E-LAYER
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

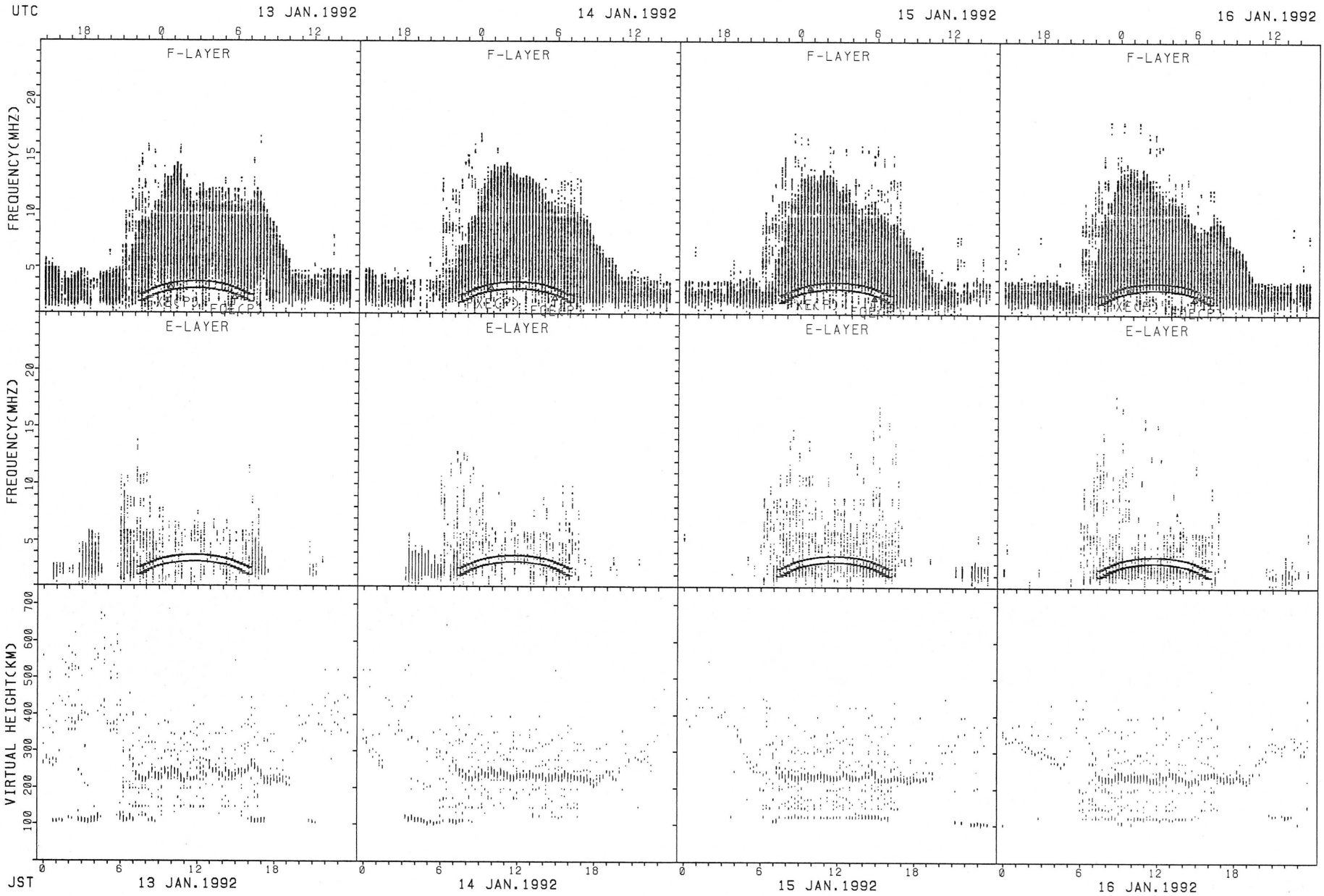
SUMMARY PLOTS AT WAKKANAI



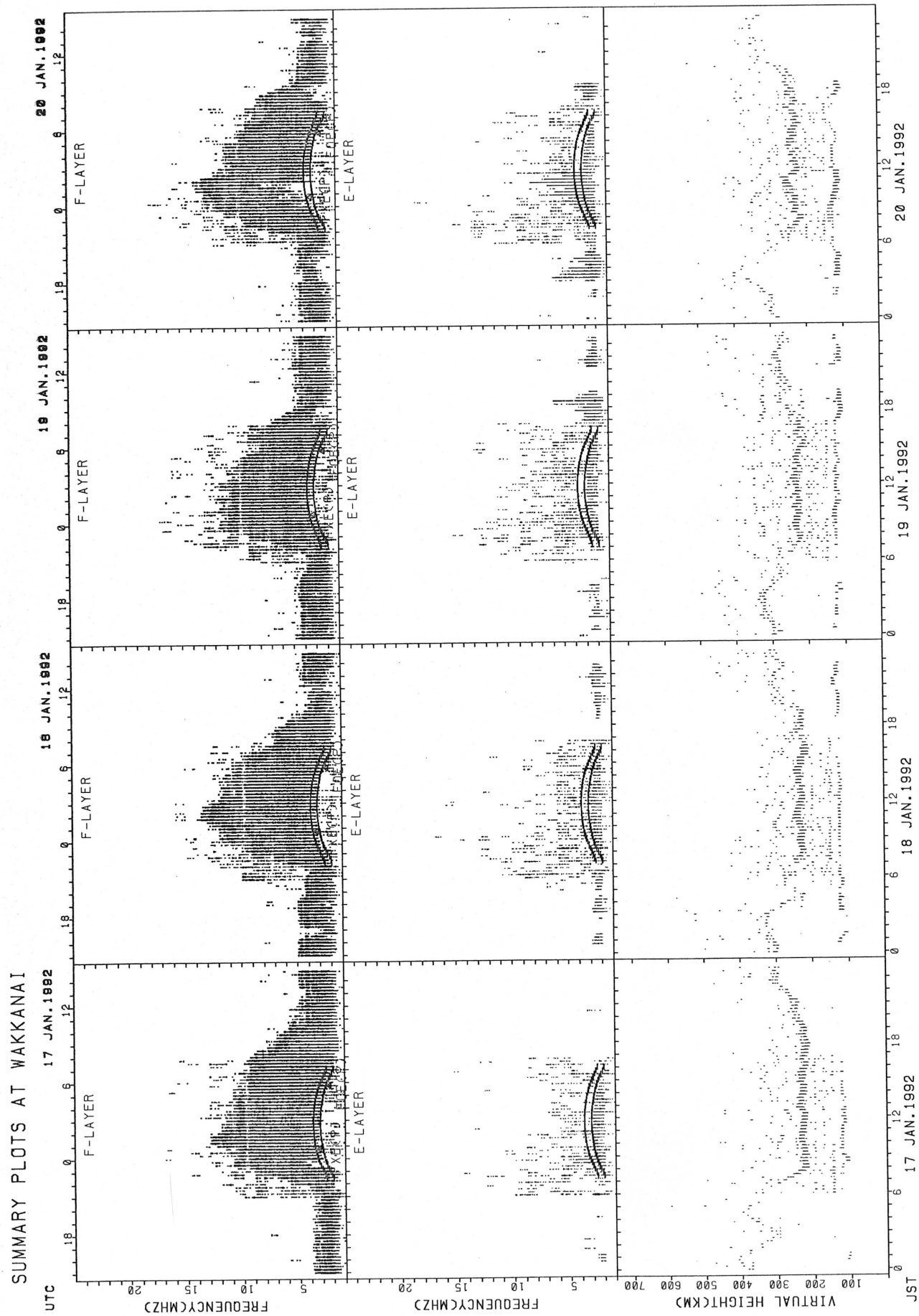
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

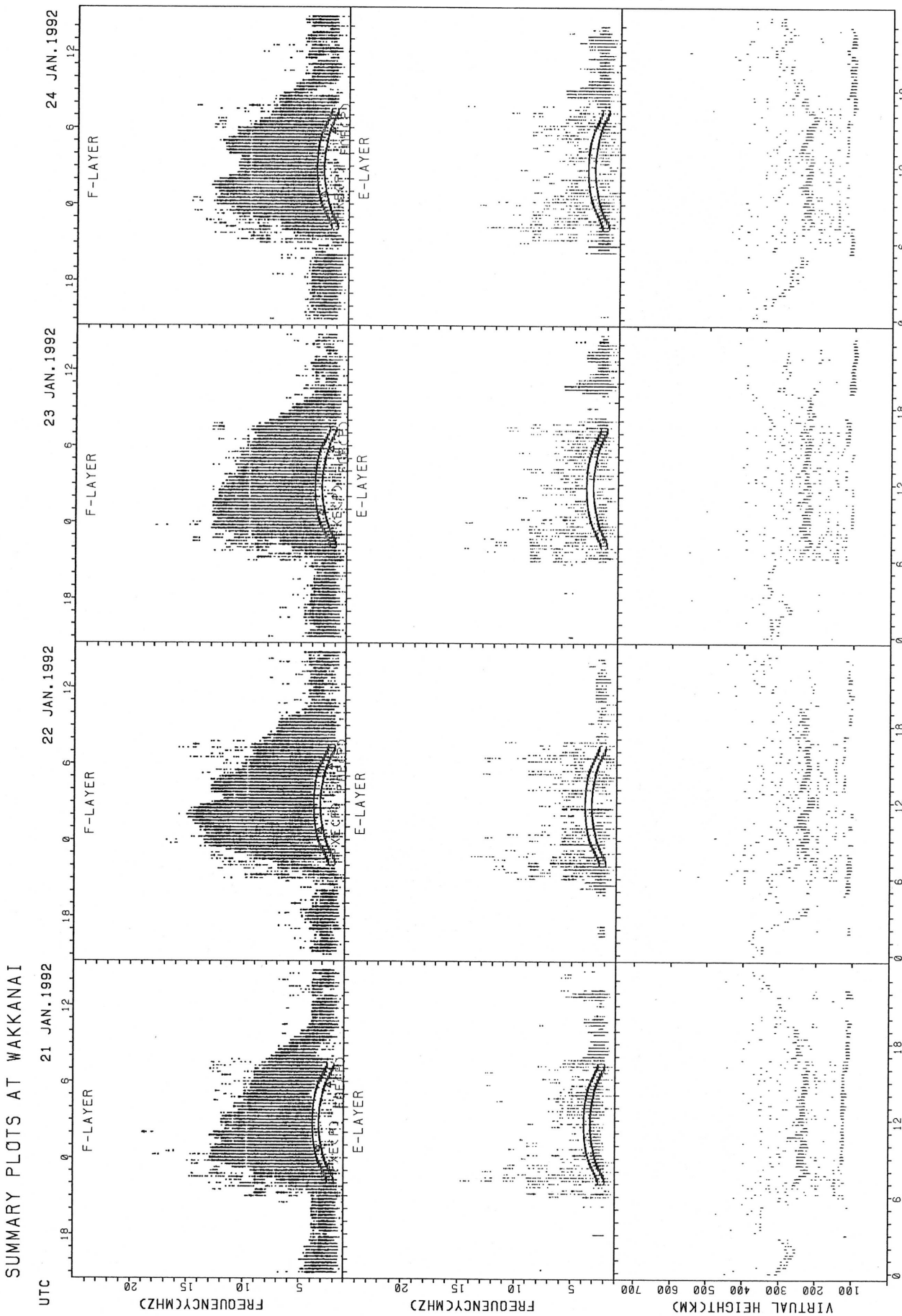

SUMMARY PLOTS AT WAKKANAI
UTC
9 JAN.1992
10 JAN.1992
11 JAN.1992
12 JAN.1992
F-LAYER
E-LAYER
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

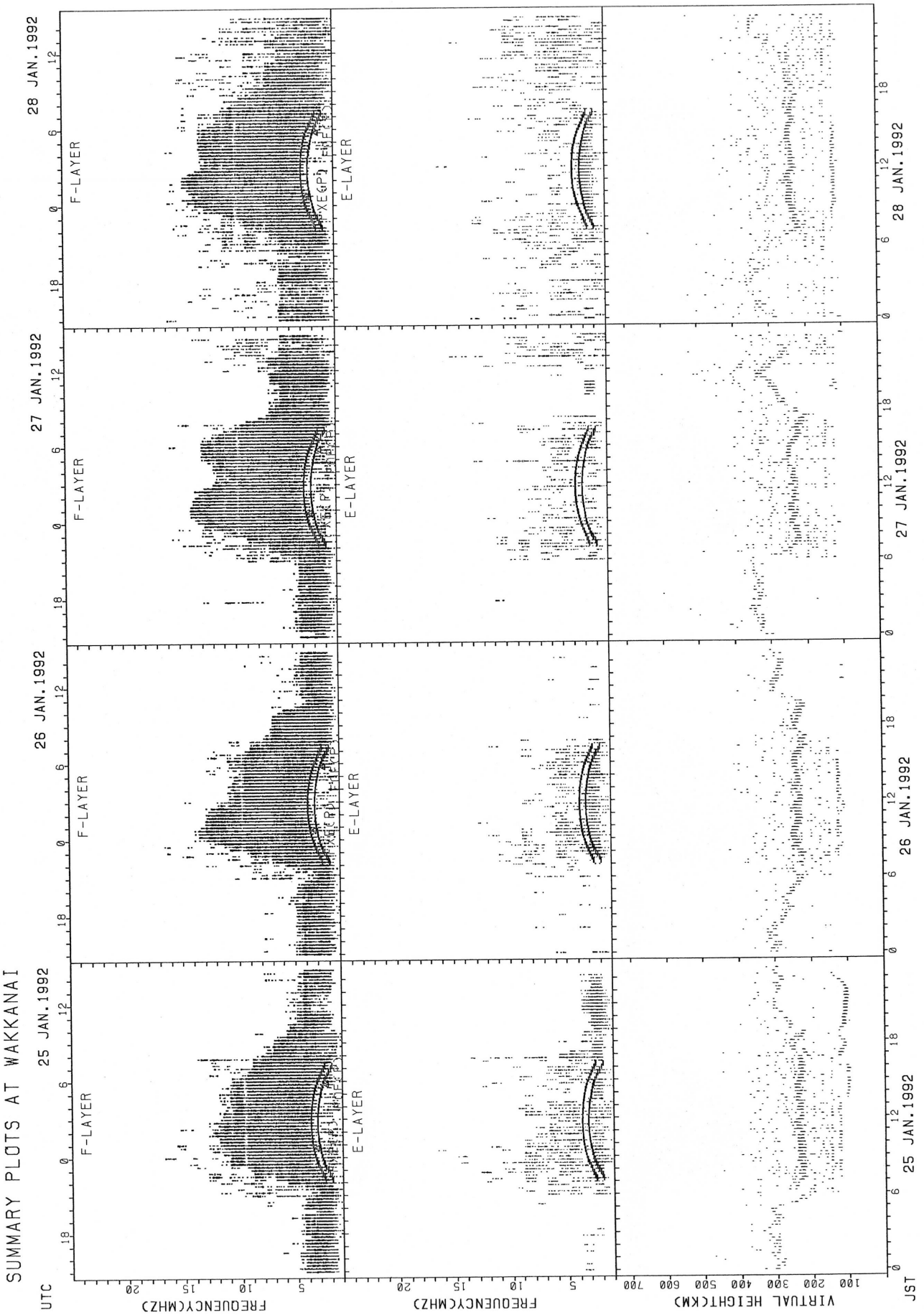
SUMMARY PLOTS AT WAKKANAI



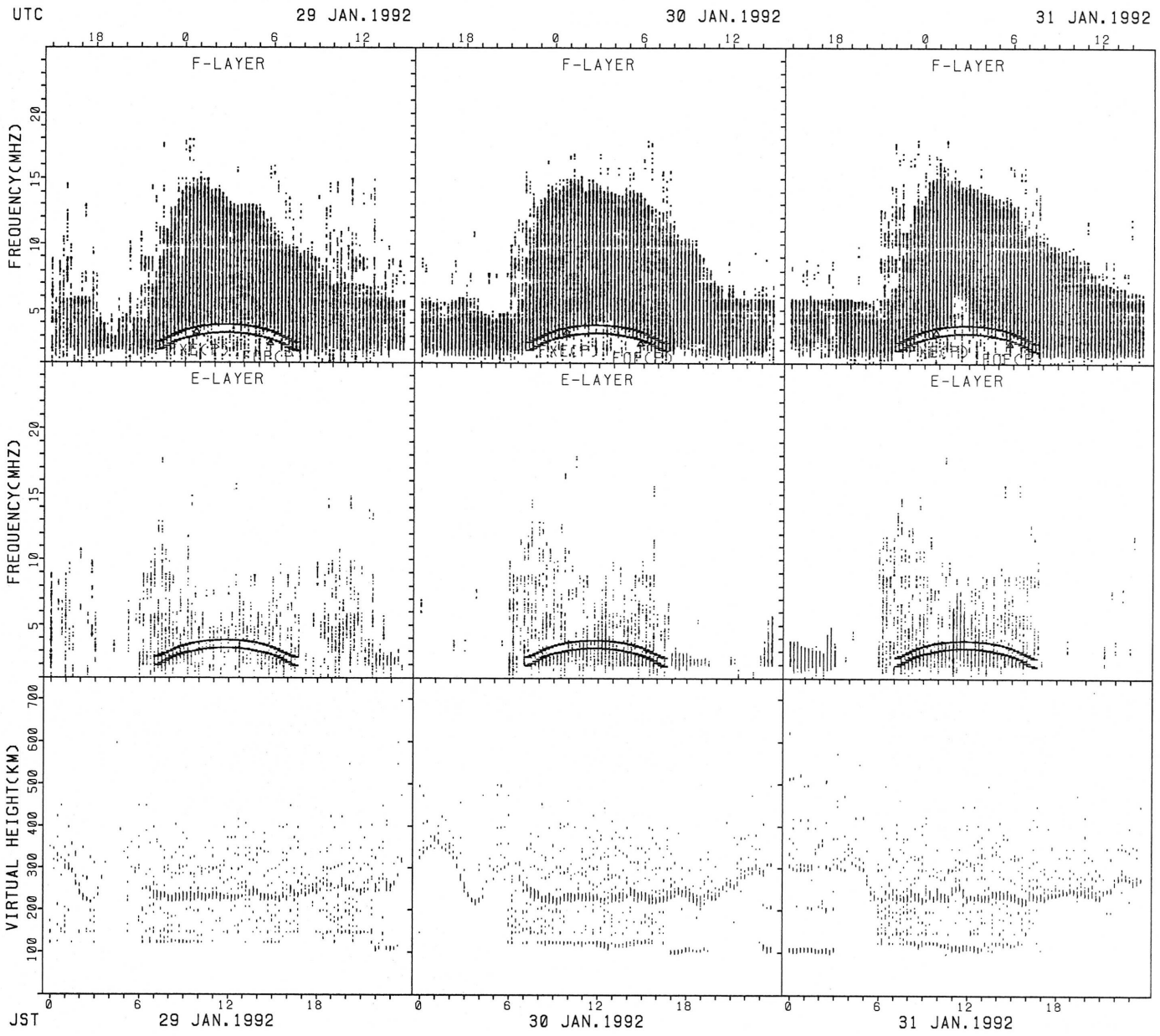
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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


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


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

SUMMARY PLOTS AT WAKKANAI



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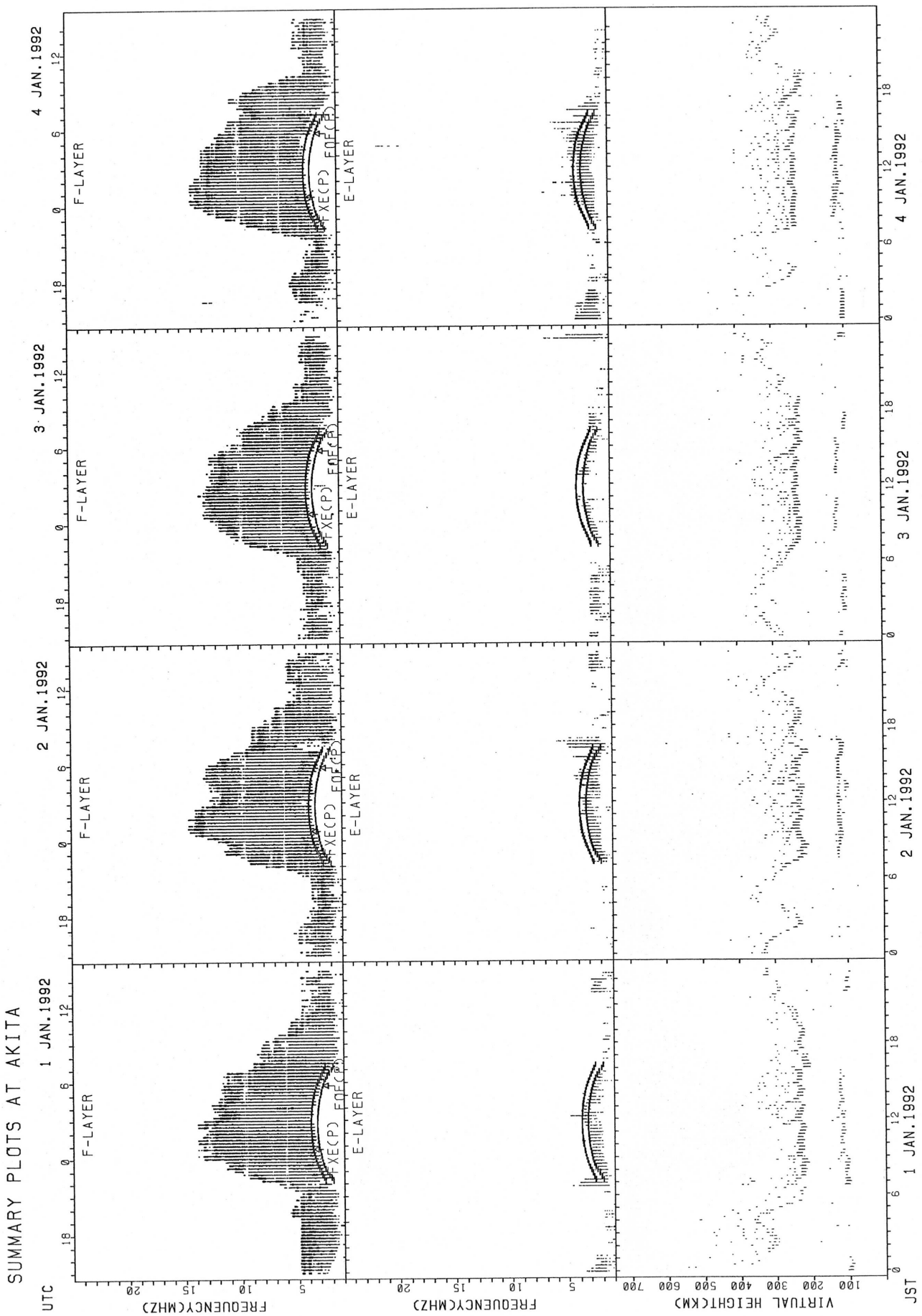
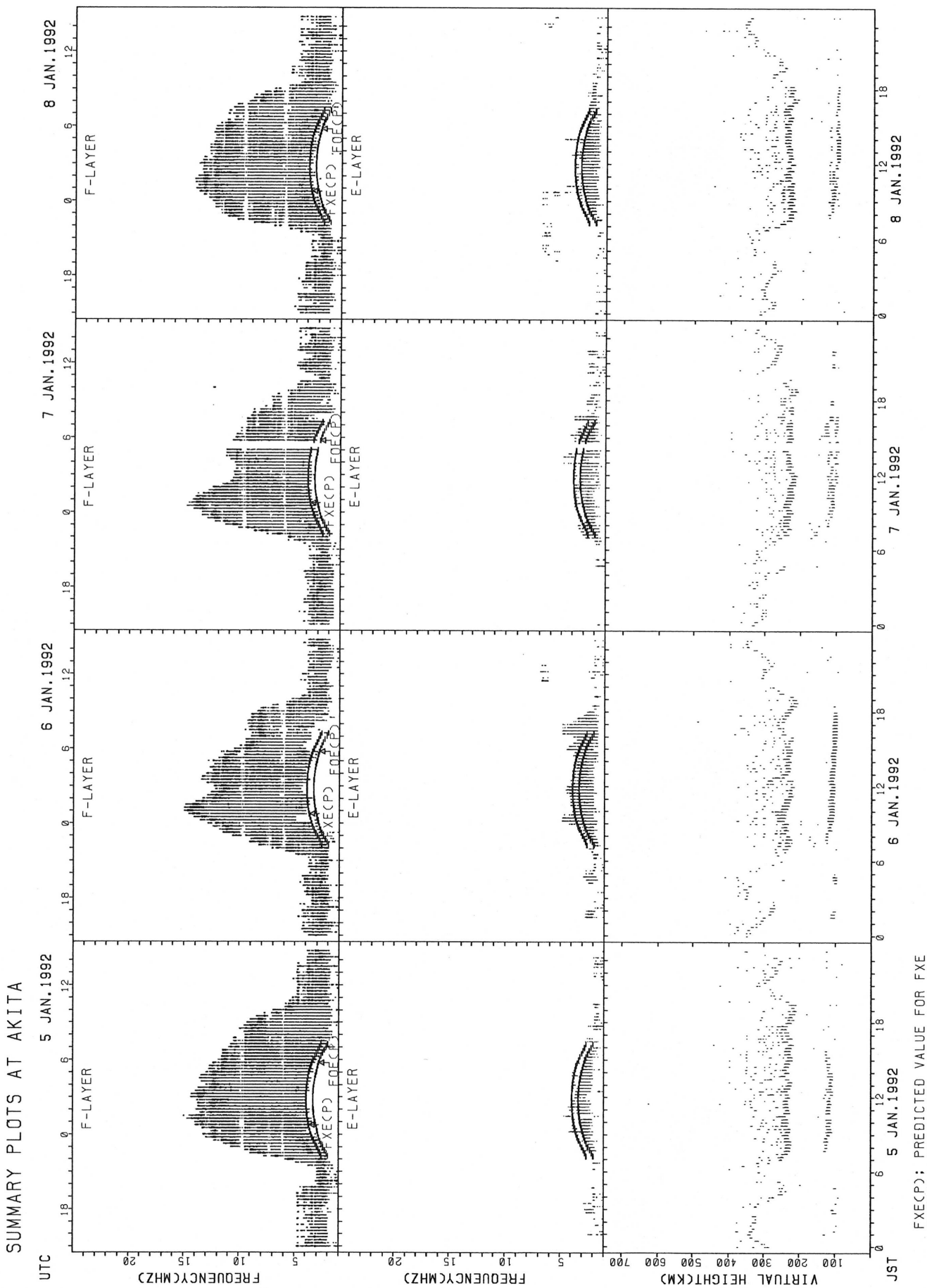
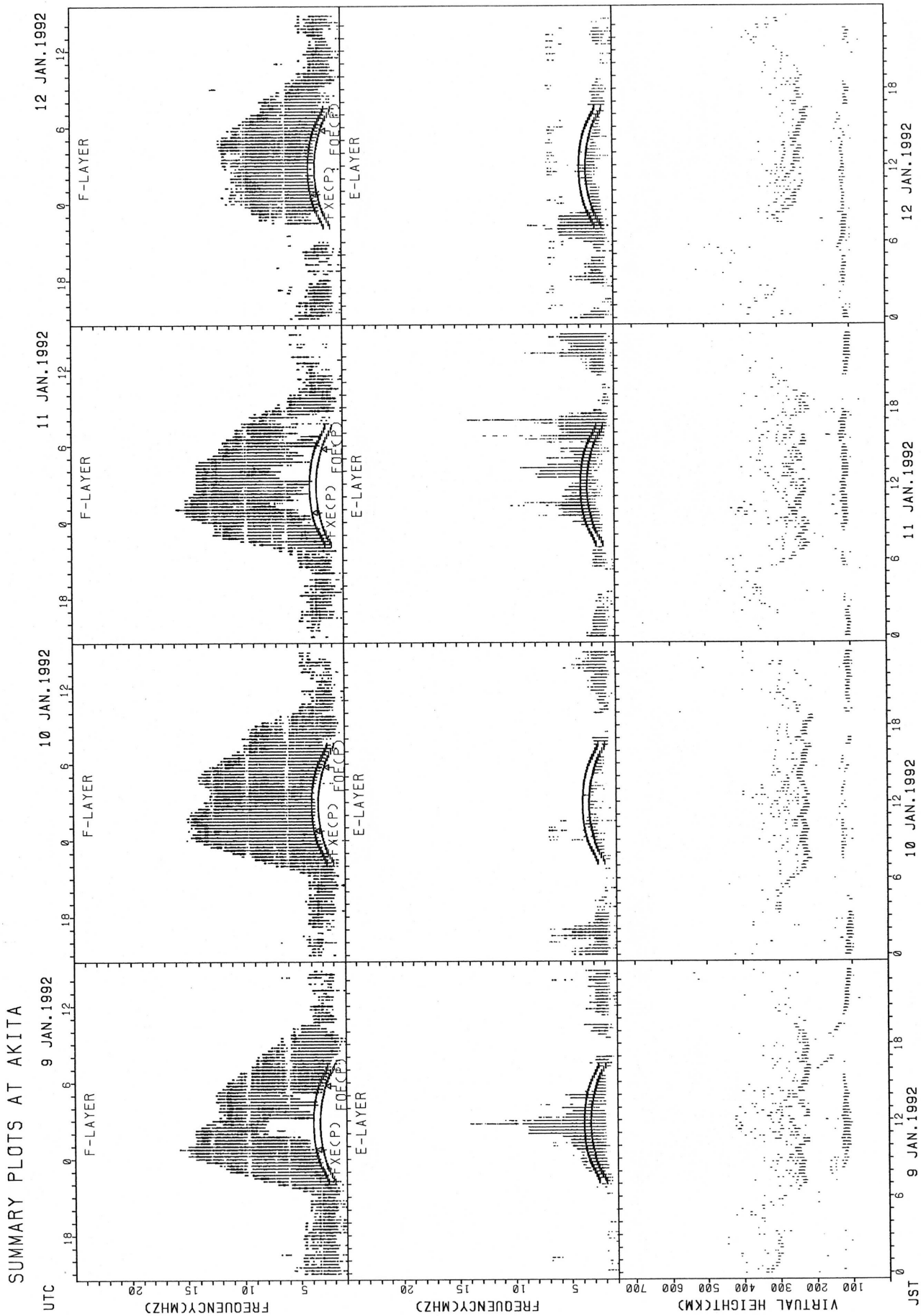
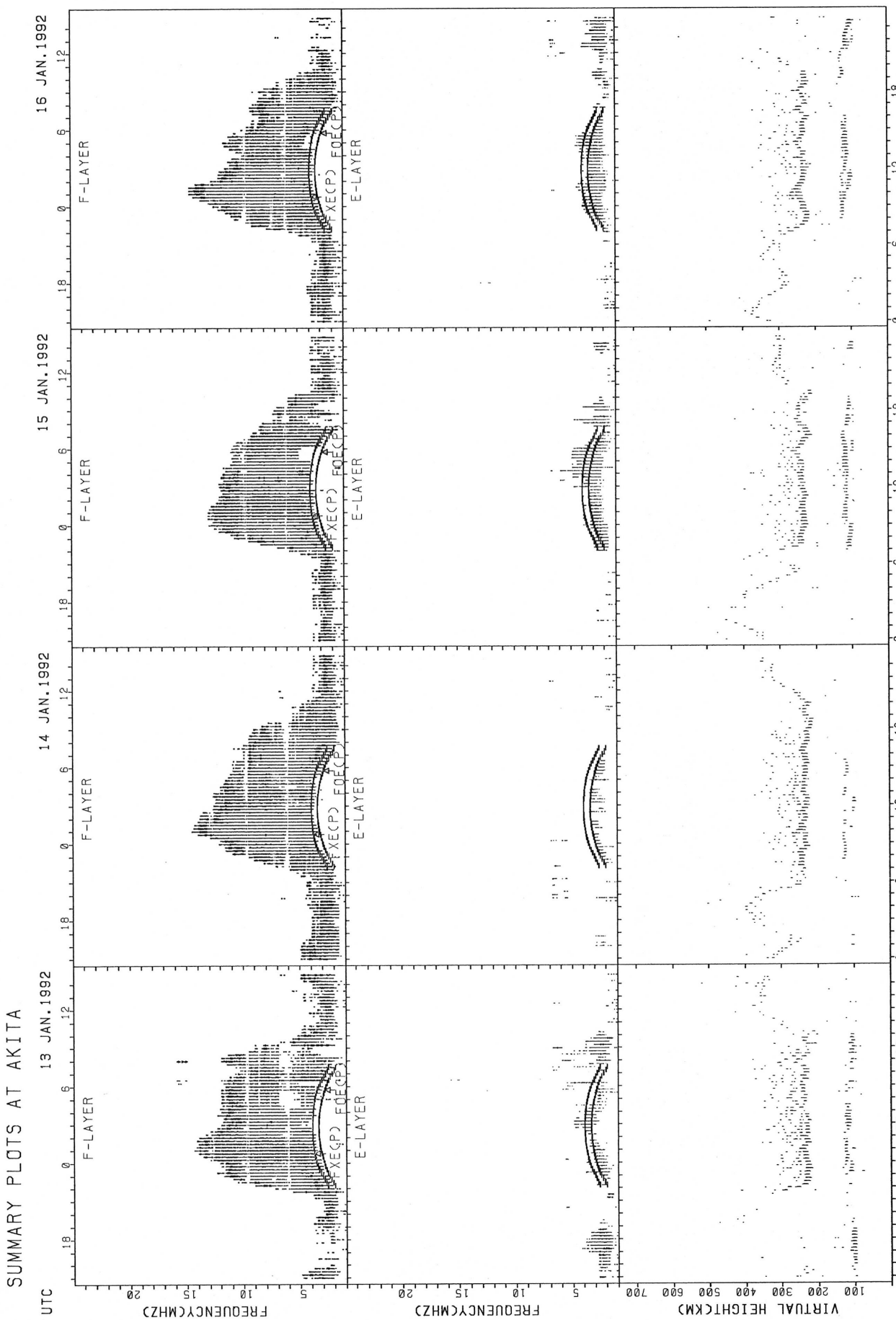
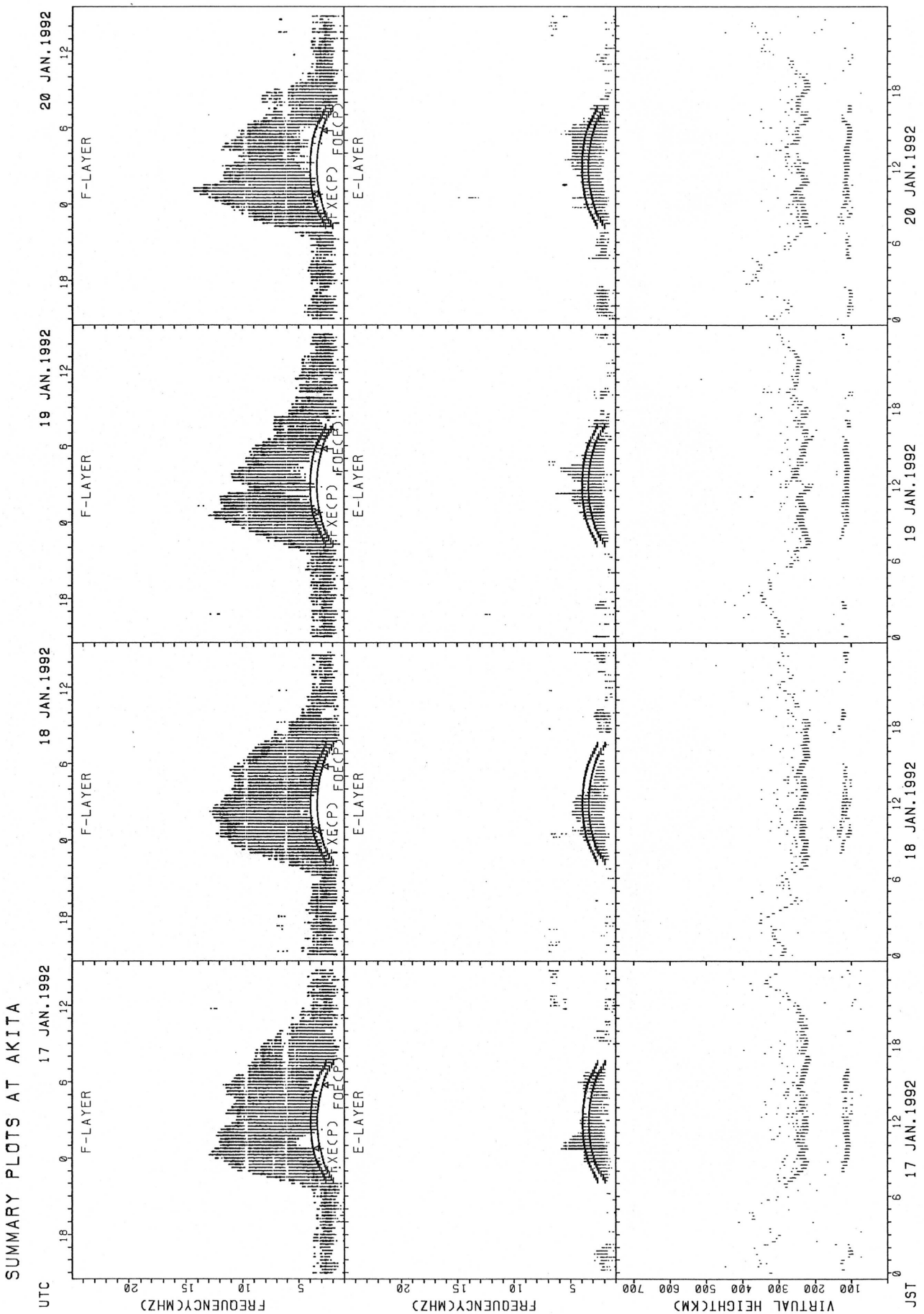
FOE(P): PREDICTED VALUE FOR FOE

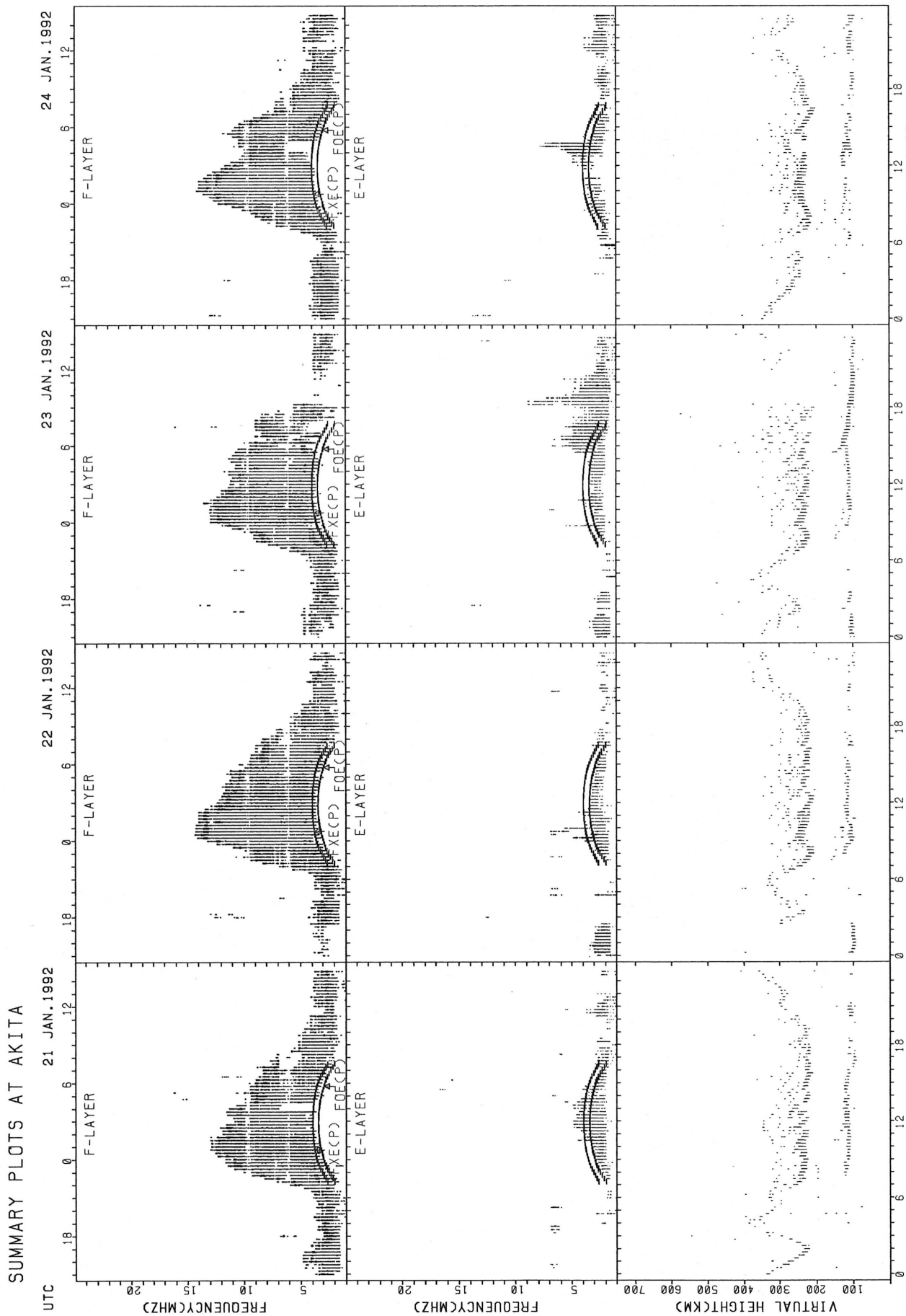

SUMMARY PLOTS AT AKITA
1 JAN.1992
2 JAN.1992
3 JAN.1992
4 JAN.1992
UTC
JST
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

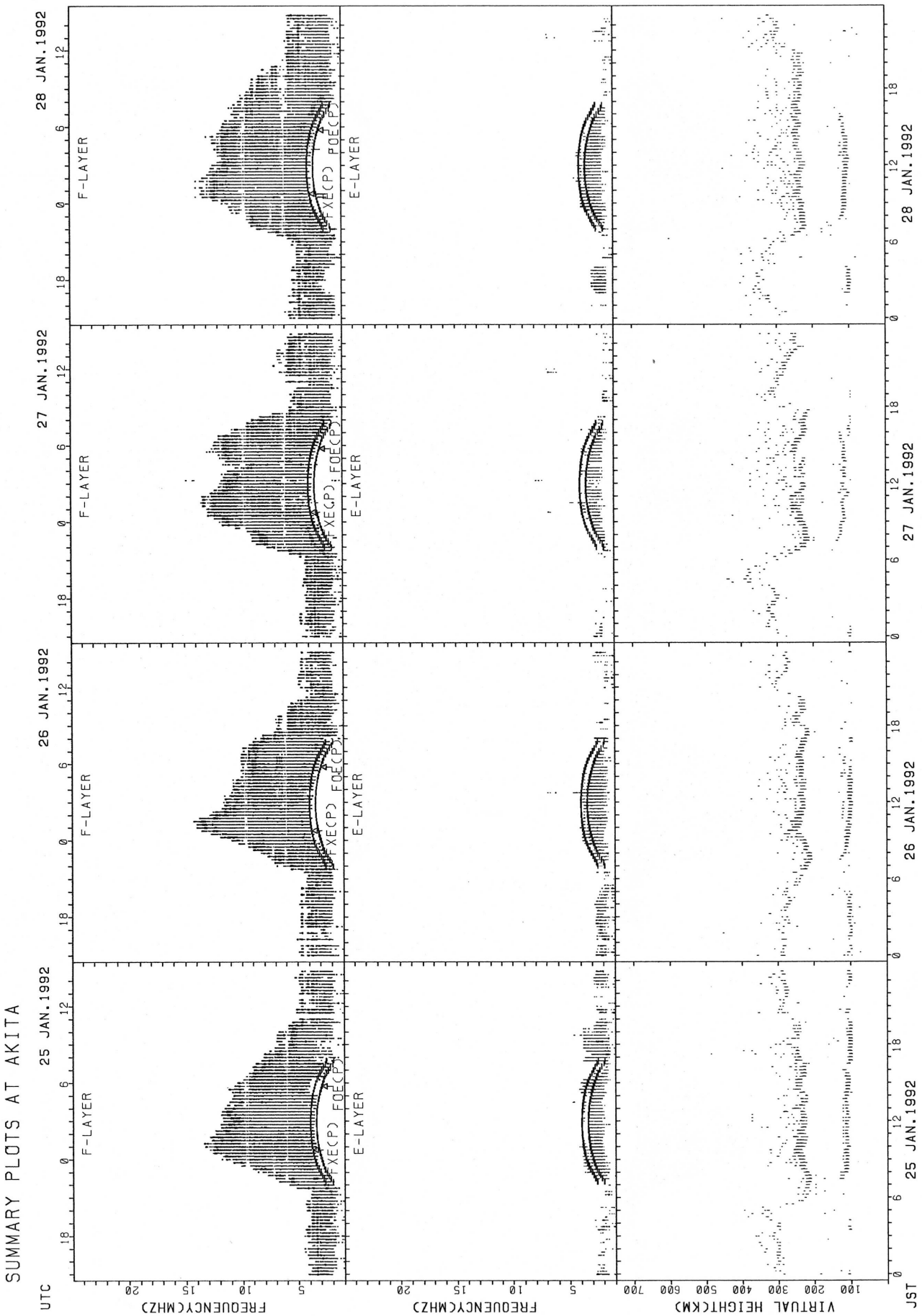

SUMMARY PLOTS AT AKITA
UTC
5 JAN.1992
6 JAN.1992
7 JAN.1992
8 JAN.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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

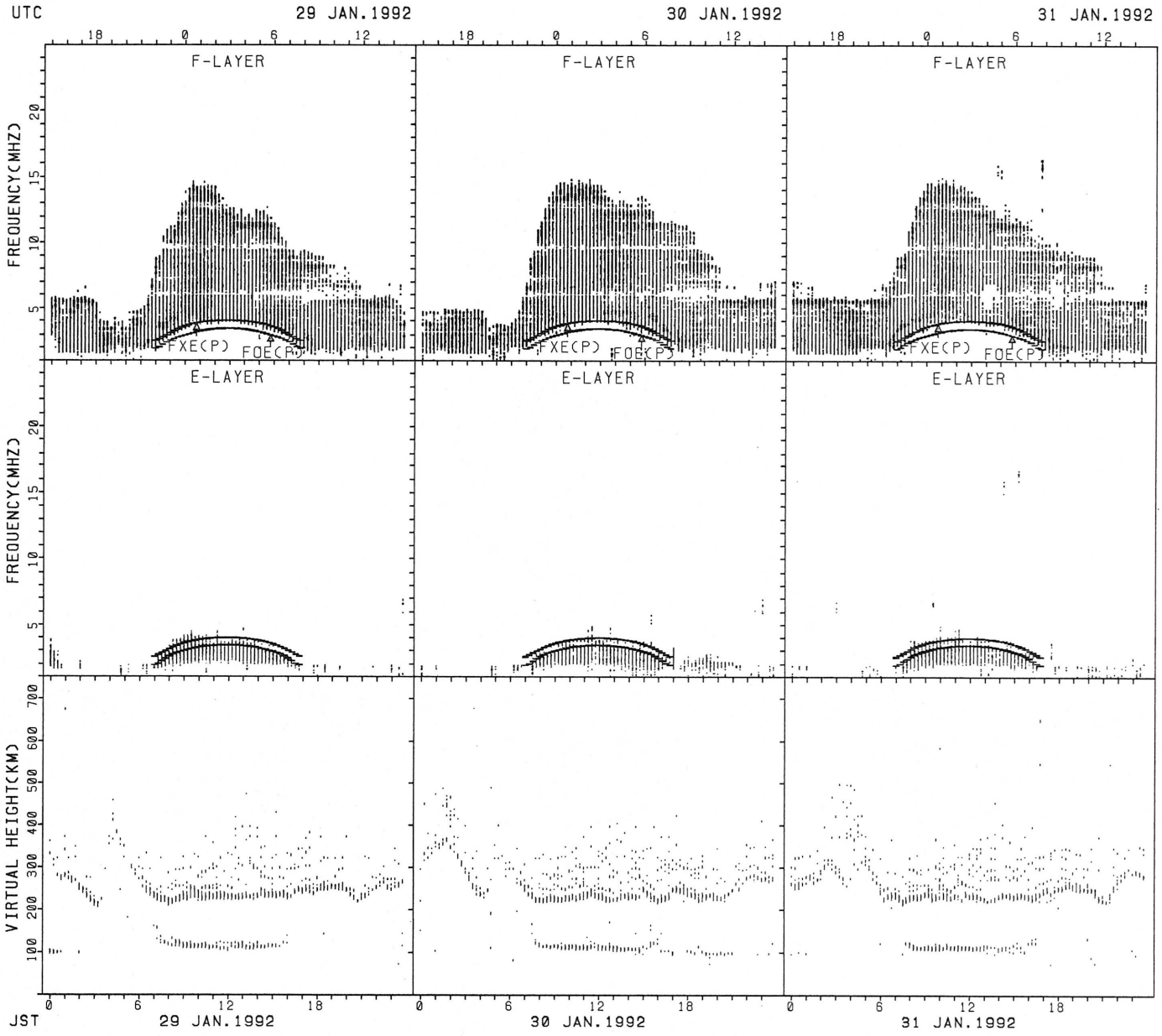

SUMMARY PLOTS AT AKITA
UTC
13 JAN.1992
14 JAN.1992
15 JAN.1992
16 JAN.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT AKITA
UTC
17 JAN.1992
18 JAN.1992
19 JAN.1992
20 JAN.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

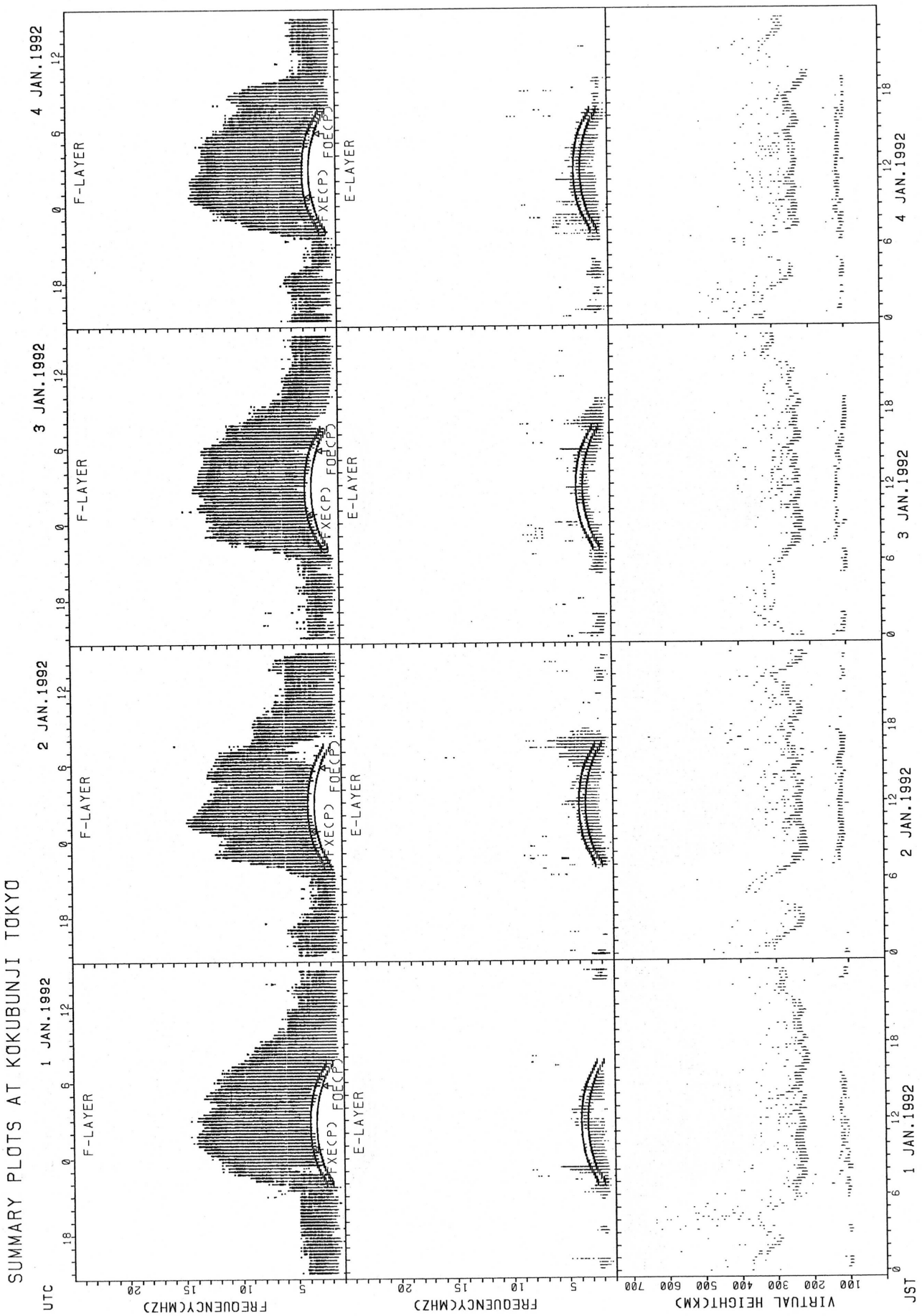

SUMMARY PLOTS AT AKITA
UTC
21 JAN.1992
22 JAN.1992
23 JAN.1992
24 JAN.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT AKITA
UTC
25 JAN.1992
26 JAN.1992
27 JAN.1992
28 JAN.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

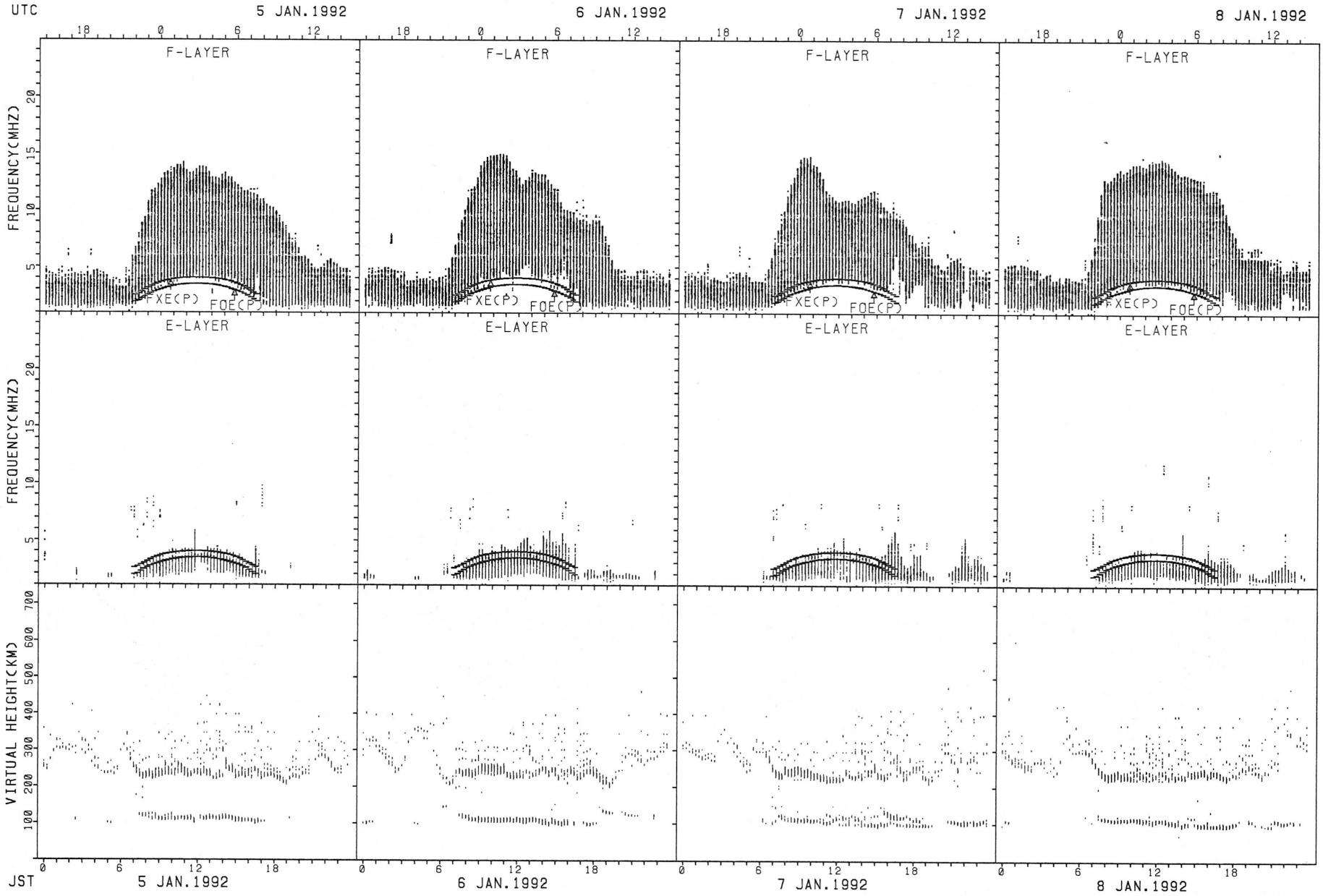
SUMMARY PLOTS AT AKITA



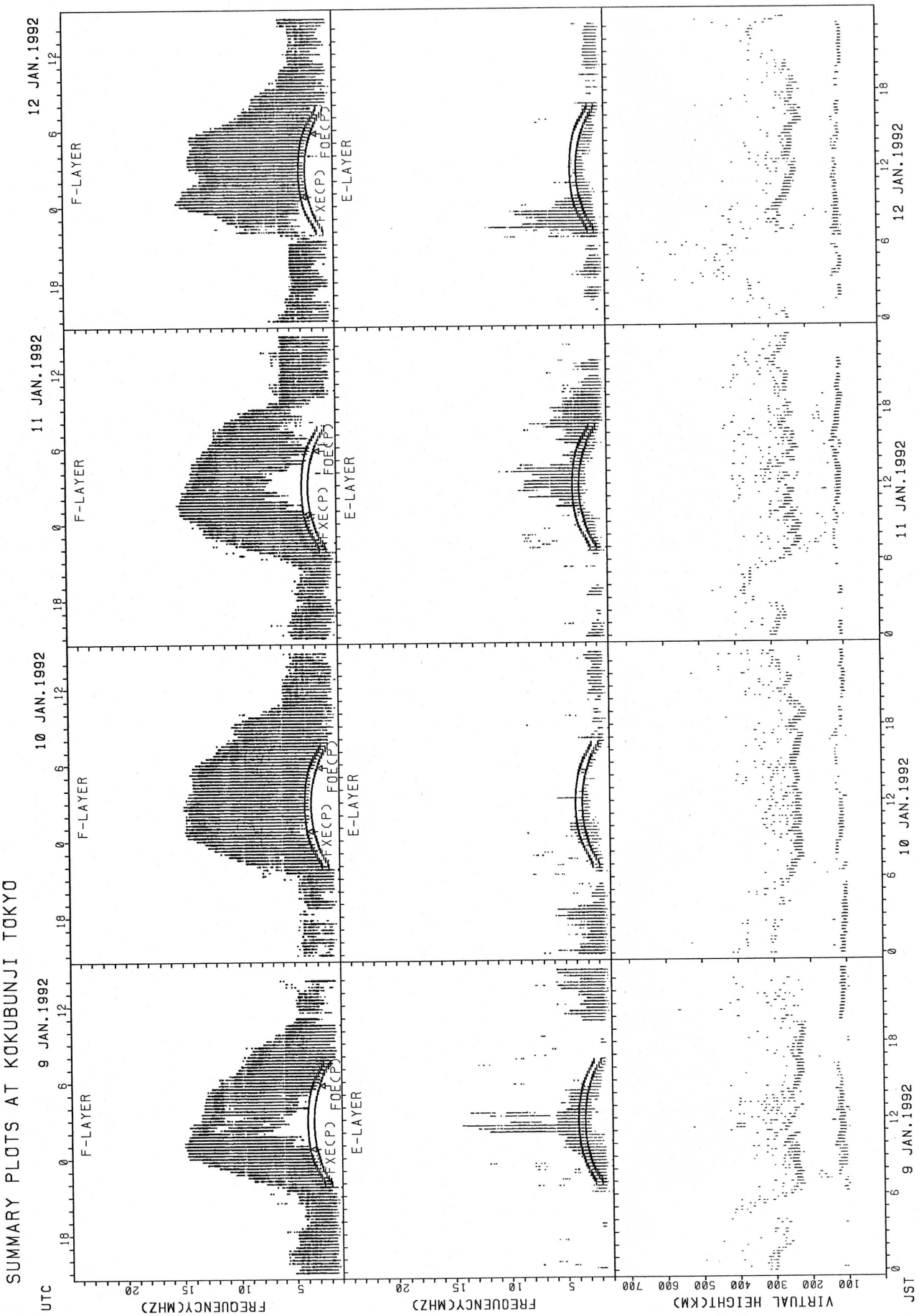
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
JST
1 JAN.1992
2 JAN.1992
3 JAN.1992
4 JAN.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

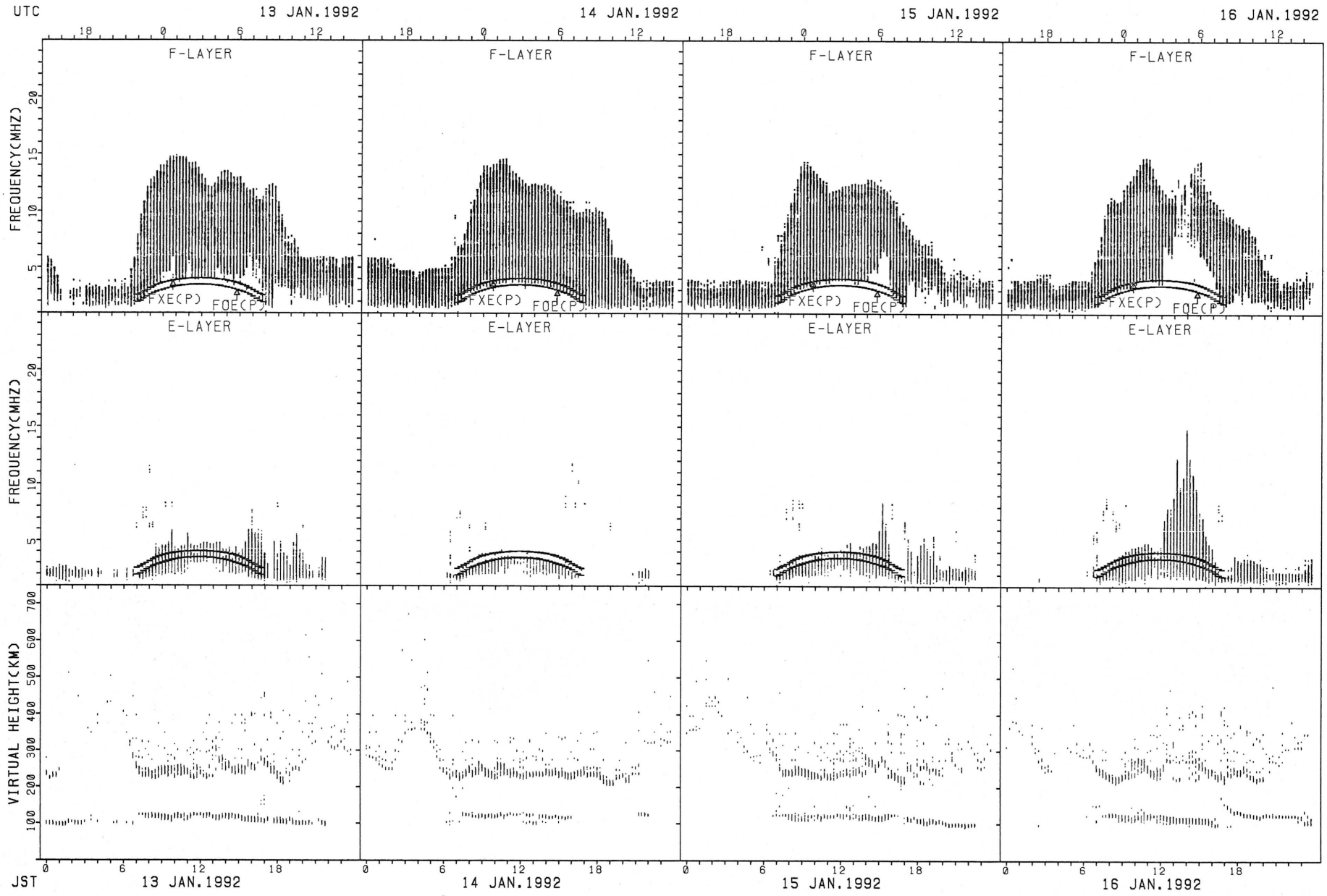
SUMMARY PLOTS AT KOKUBUNJI TOKYO



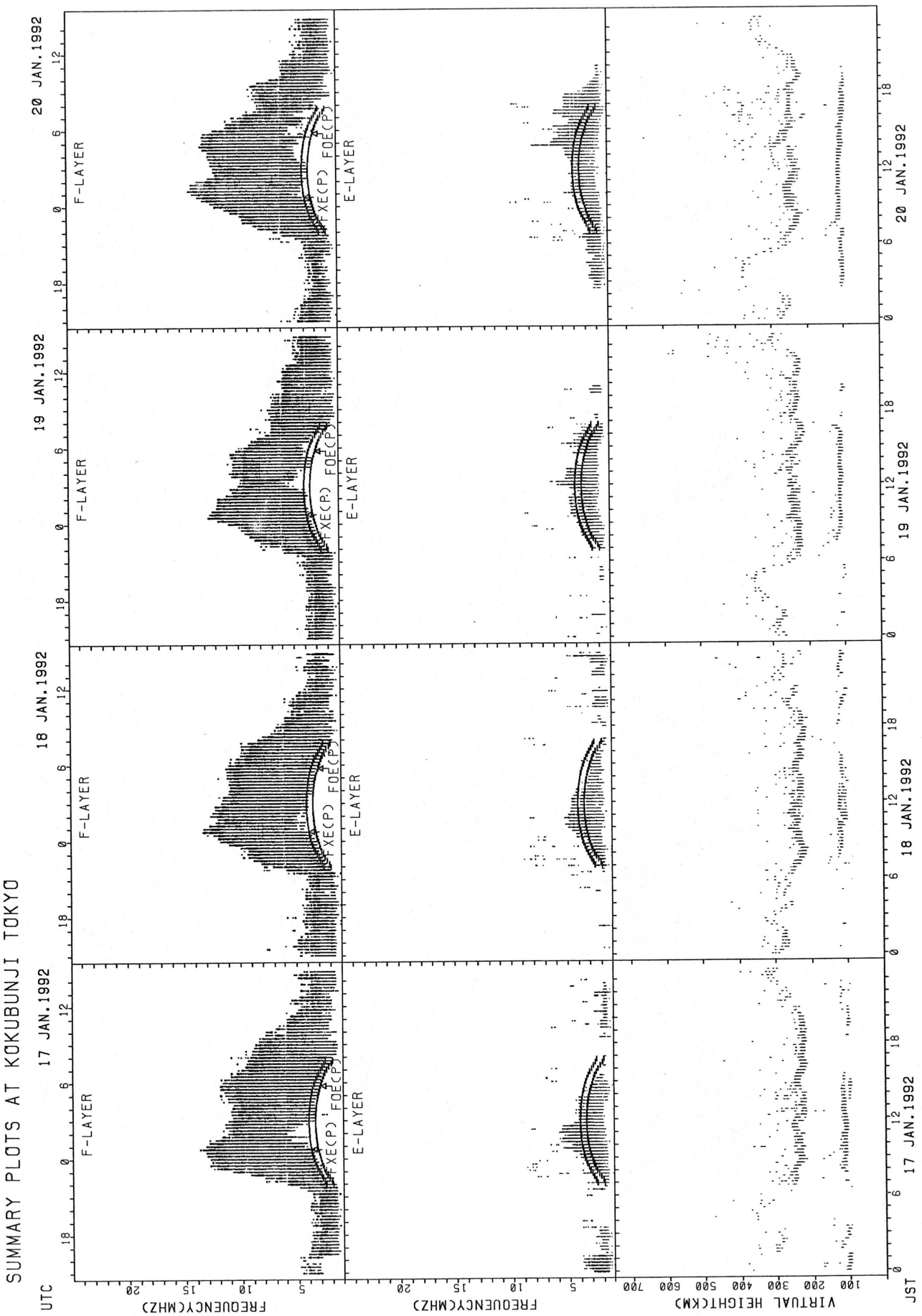
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

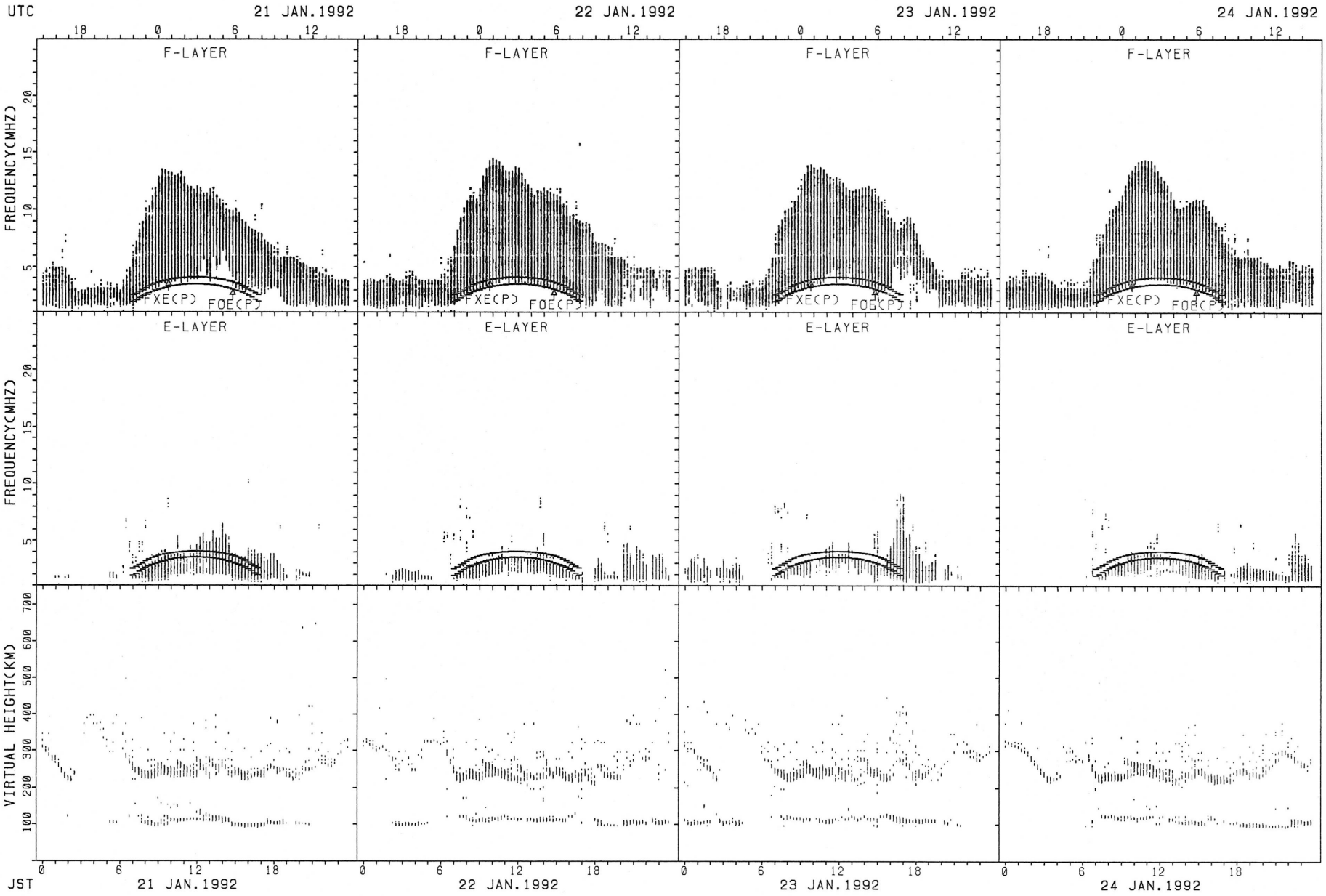

SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
JST
9 JAN.1992
10 JAN.1992
11 JAN.1992
12 JAN.1992
F-LAYER
E-LAYER
FXE(P)
FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

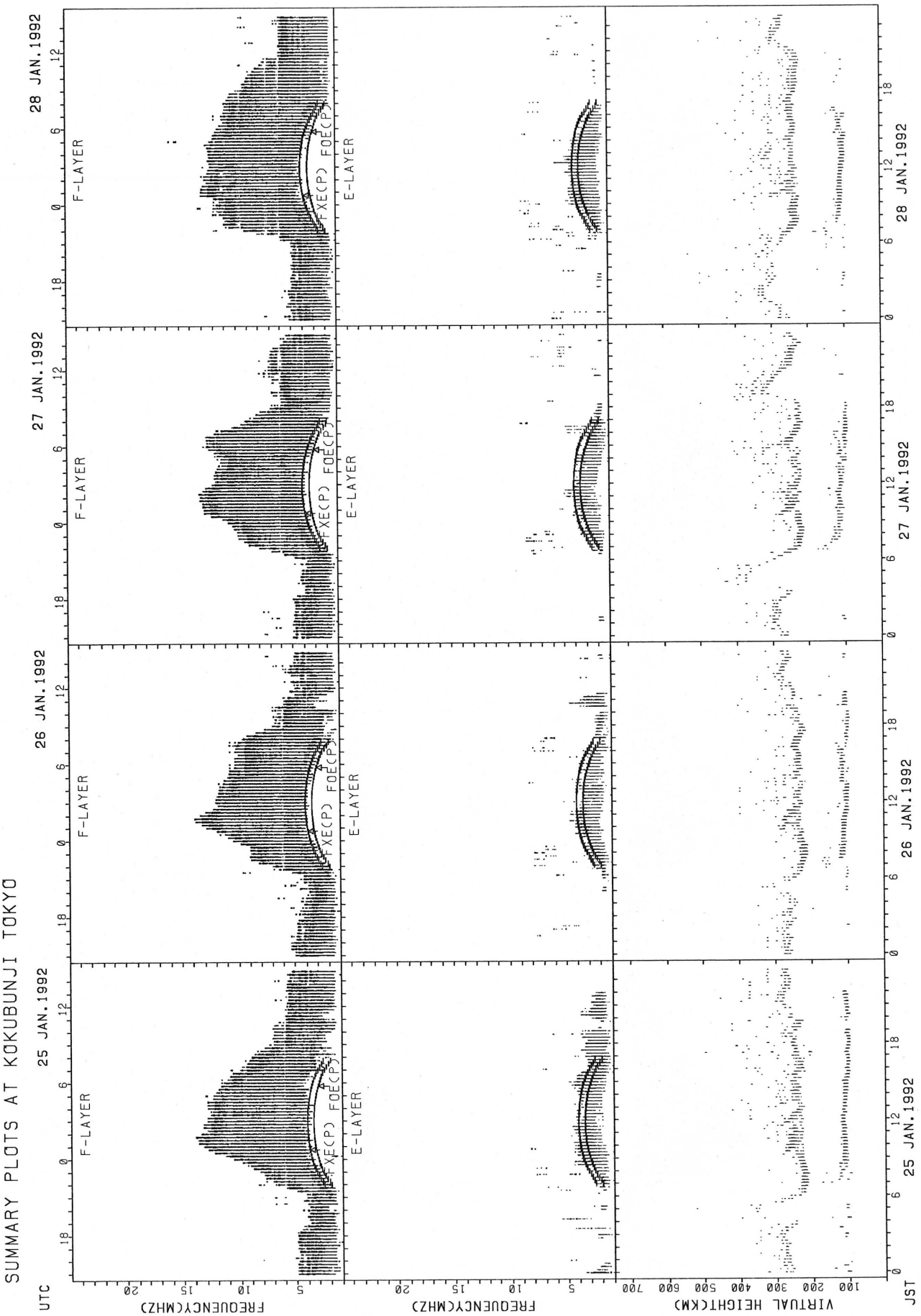
SUMMARY PLOTS AT KOKUBUNJI TOKYO



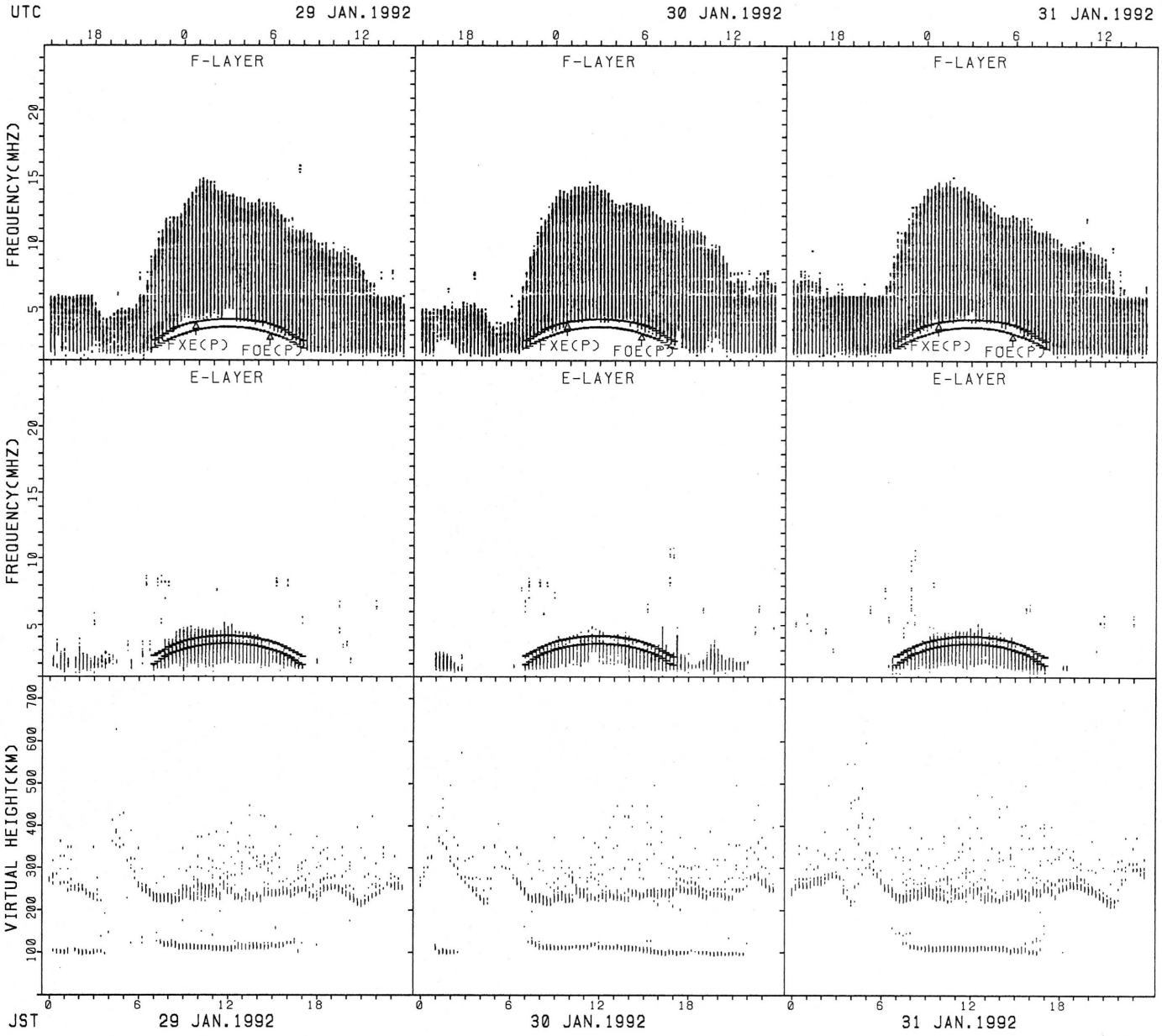
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
17 JAN.1992
18 JAN.1992
19 JAN.1992
20 JAN.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

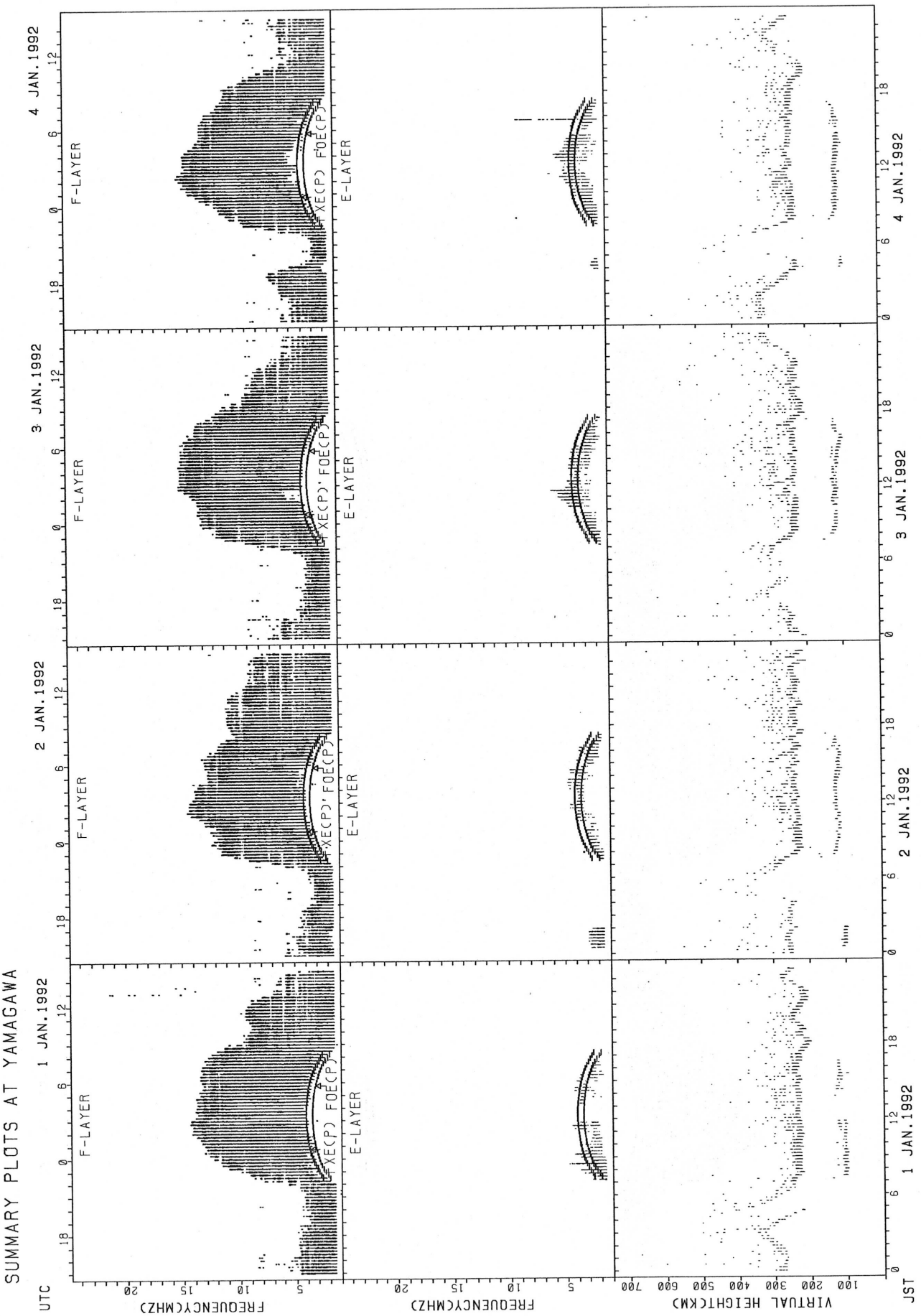

SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
21 JAN.1992
22 JAN.1992
23 JAN.1992
24 JAN.1992
F-LAYER
E-LAYER
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
FXE(P)
FOE(P)
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT KOKUBUNJI TOKYO
UTC
25 JAN.1992
26 JAN.1992
27 JAN.1992
28 JAN.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

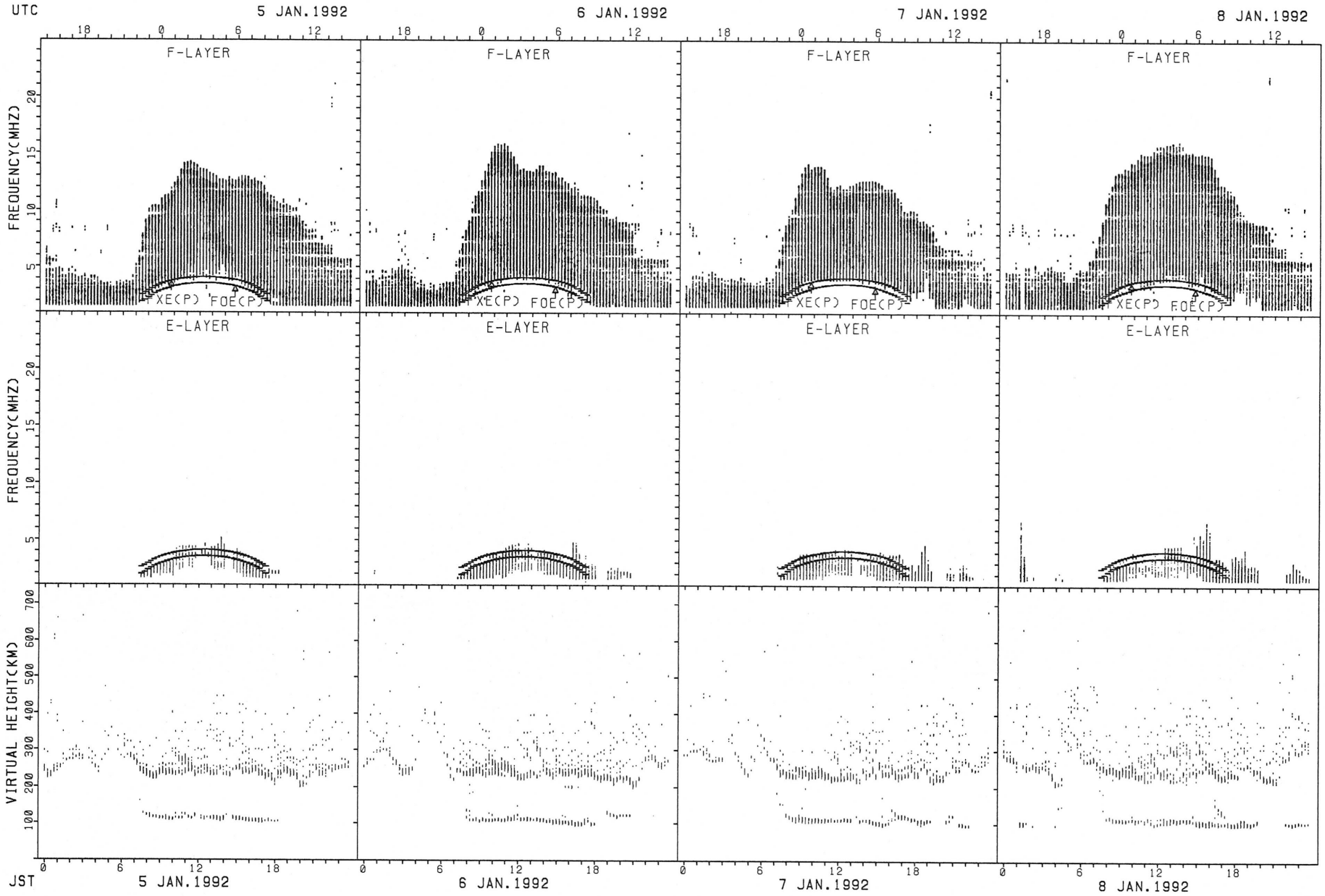
SUMMARY PLOTS AT KOKUBUNJI TOKYO



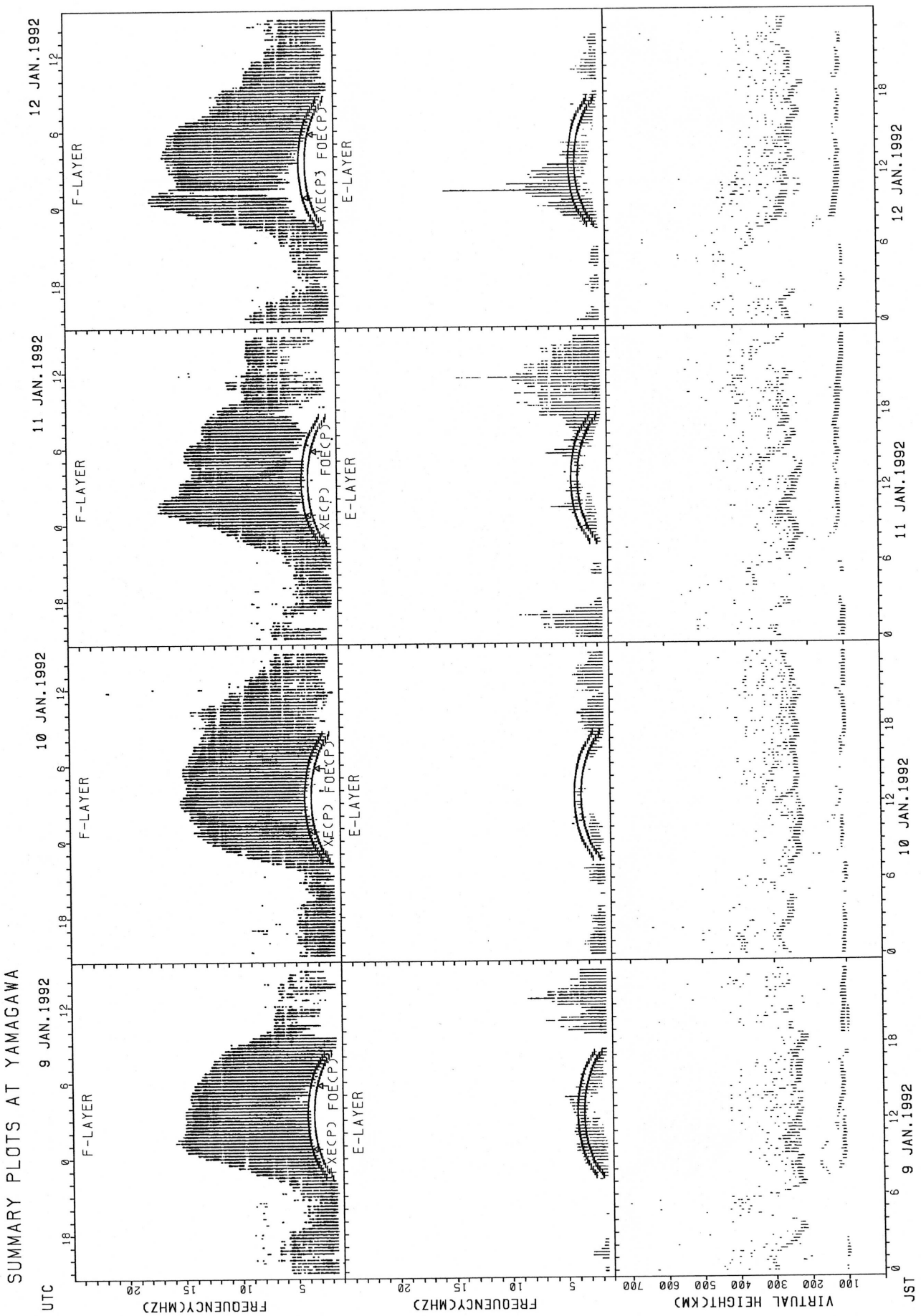
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT YAMAGAWA
UTC
1 JAN.1992
2 JAN.1992
3 JAN.1992
4 JAN.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

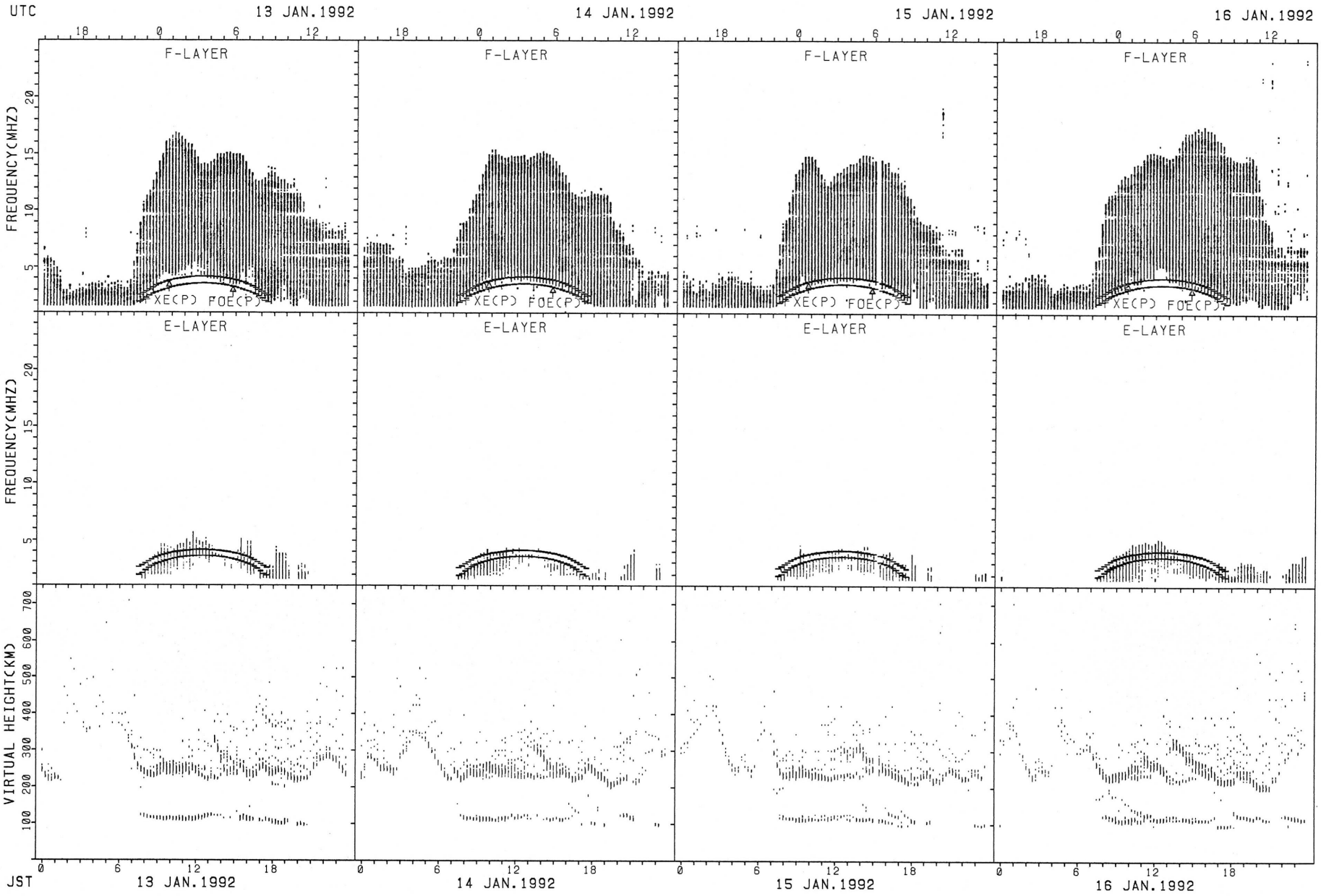
SUMMARY PLOTS AT YAMAGAWA



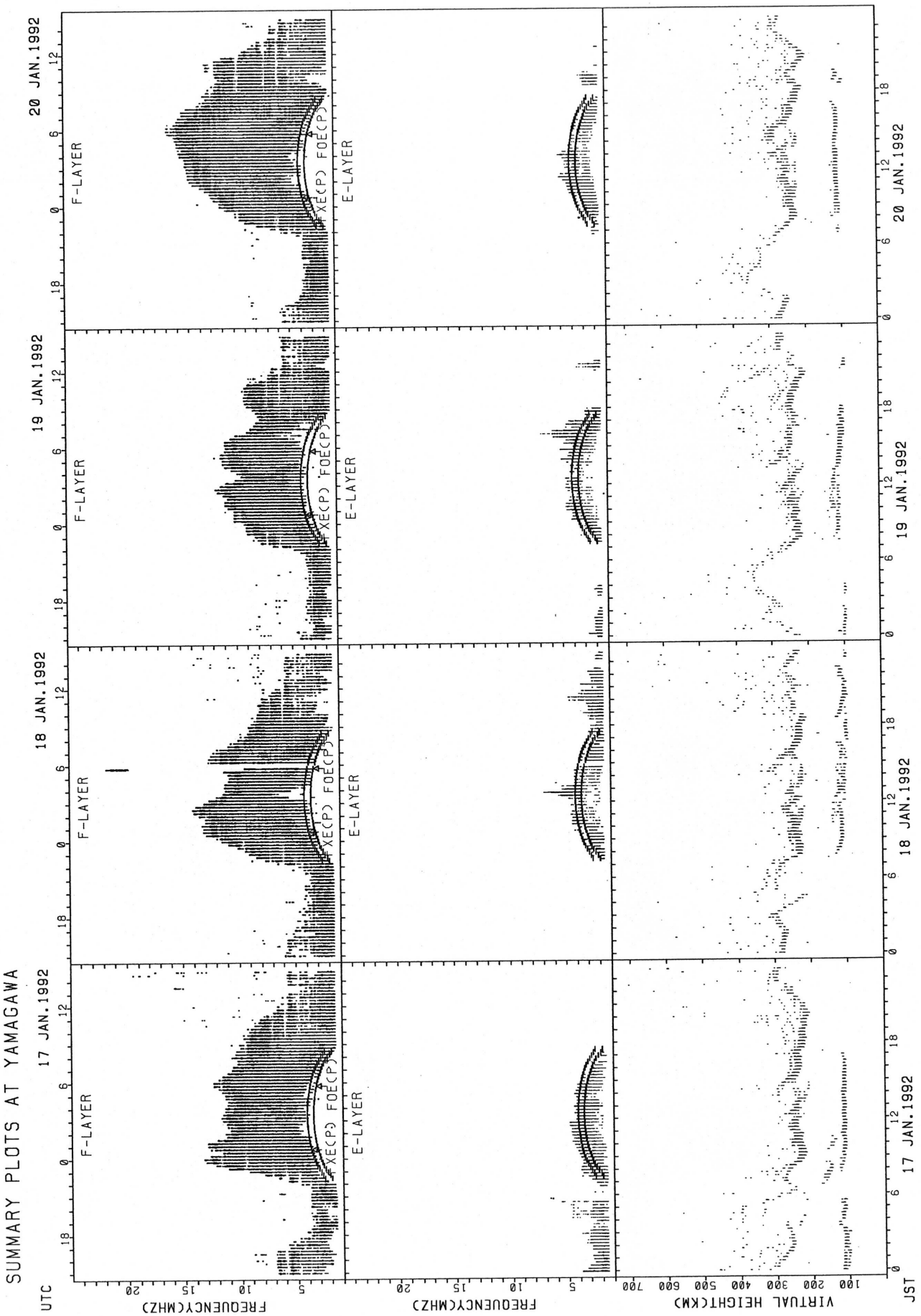
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT YAMAGAWA
UTC
9 JAN.1992
10 JAN.1992
11 JAN.1992
12 JAN.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

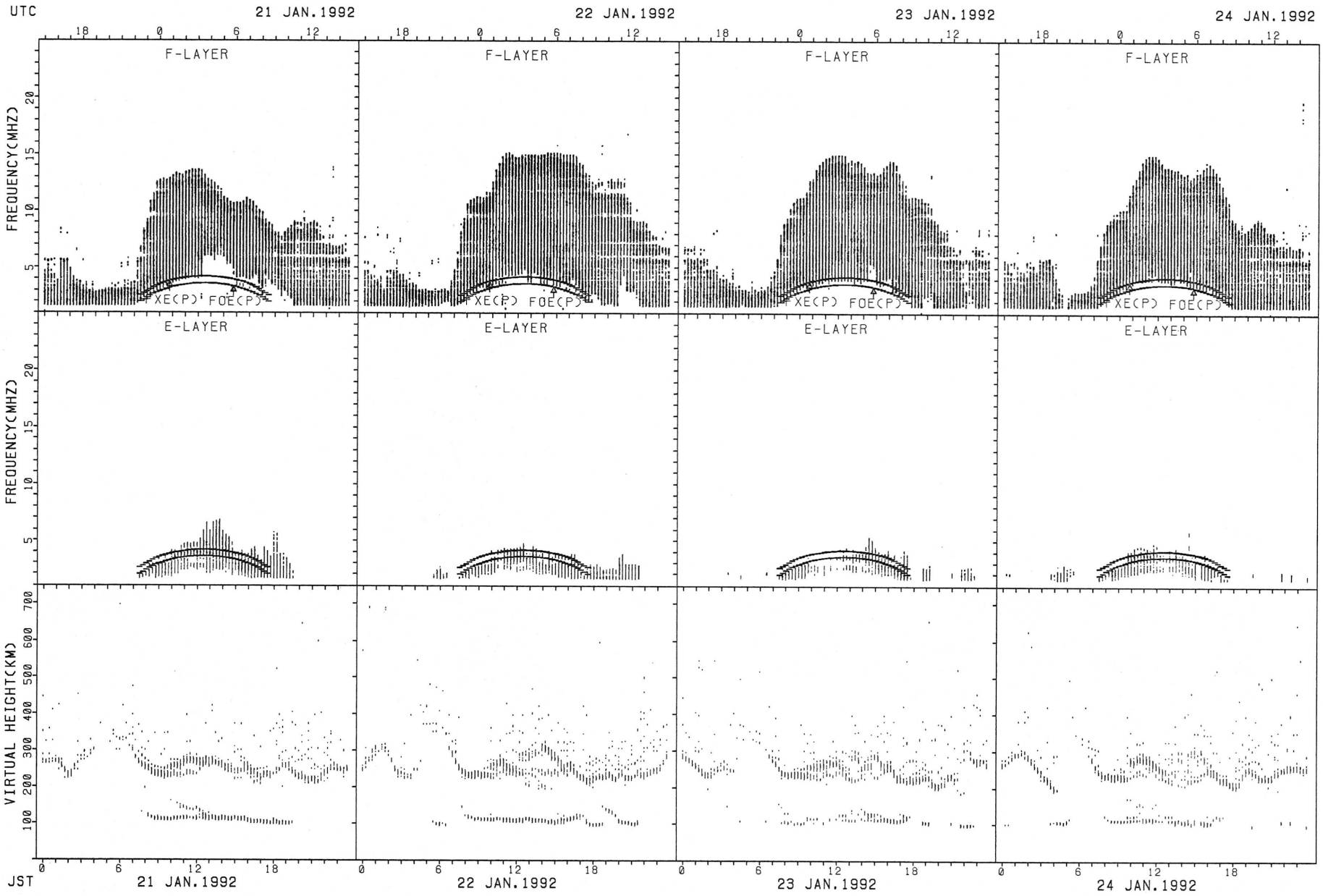
SUMMARY PLOTS AT YAMAGAWA



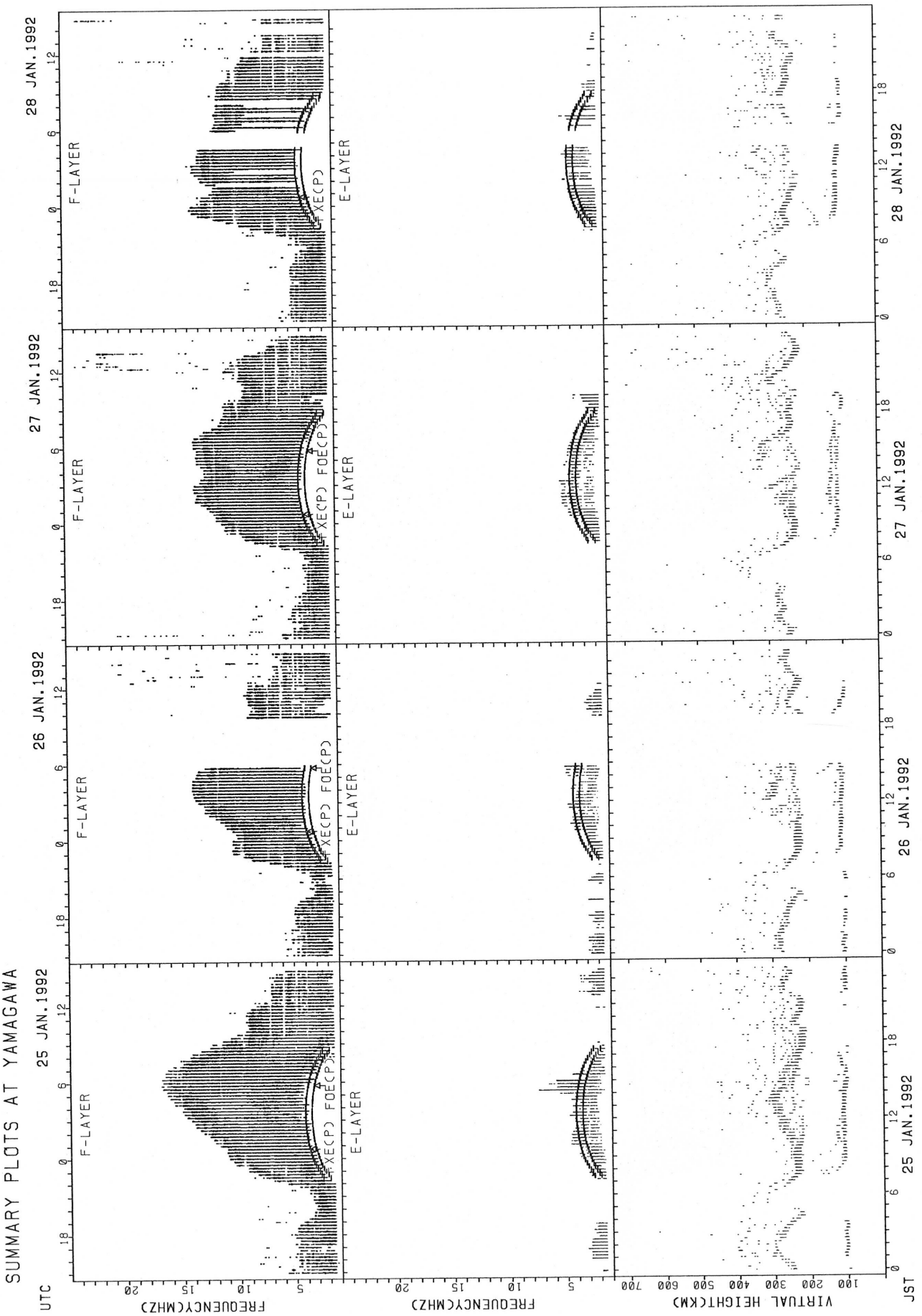
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

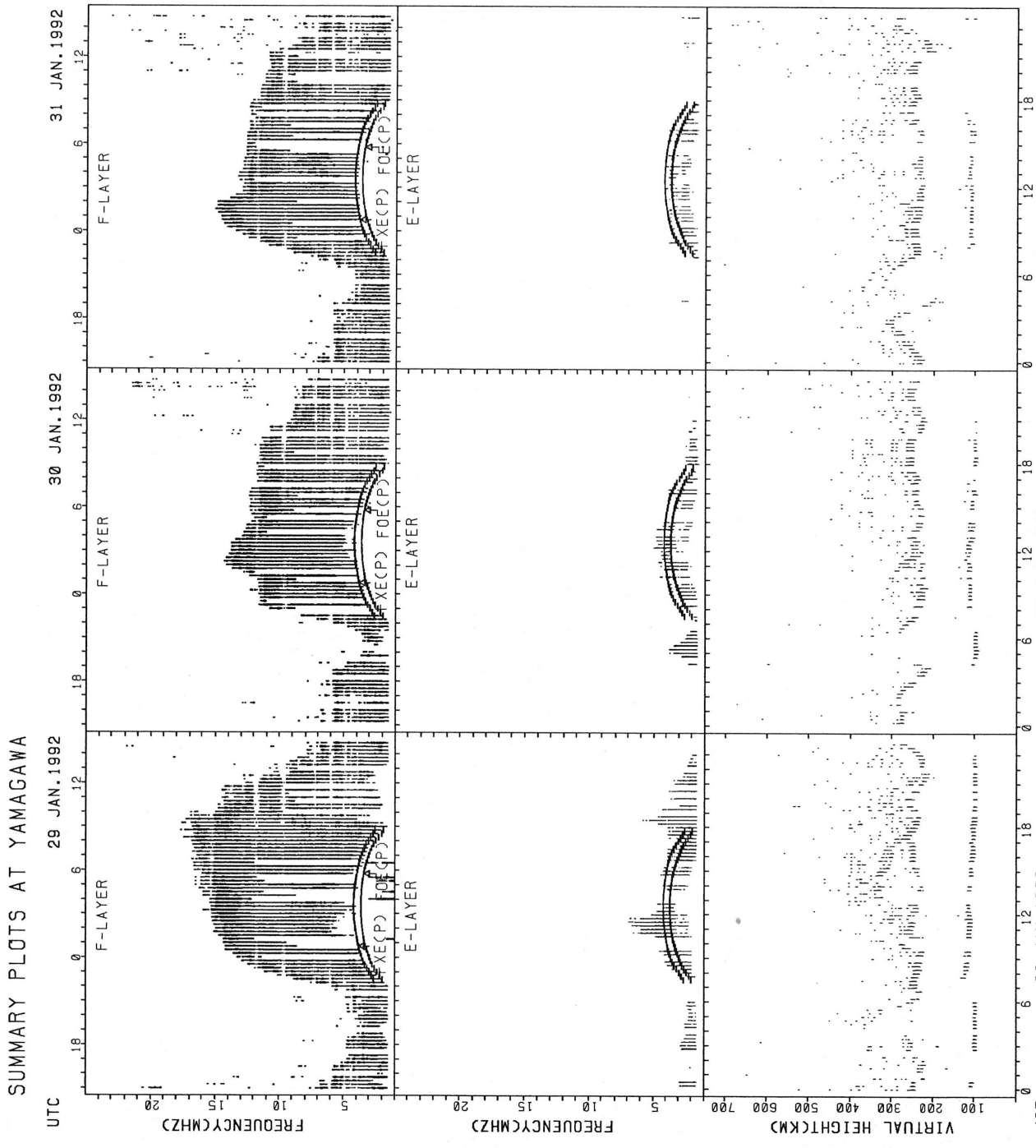

SUMMARY PLOTS AT YAMAGAWA
17 JAN.1992
18 JAN.1992
19 JAN.1992
20 JAN.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
UTC
JST
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT YAMAGAWA

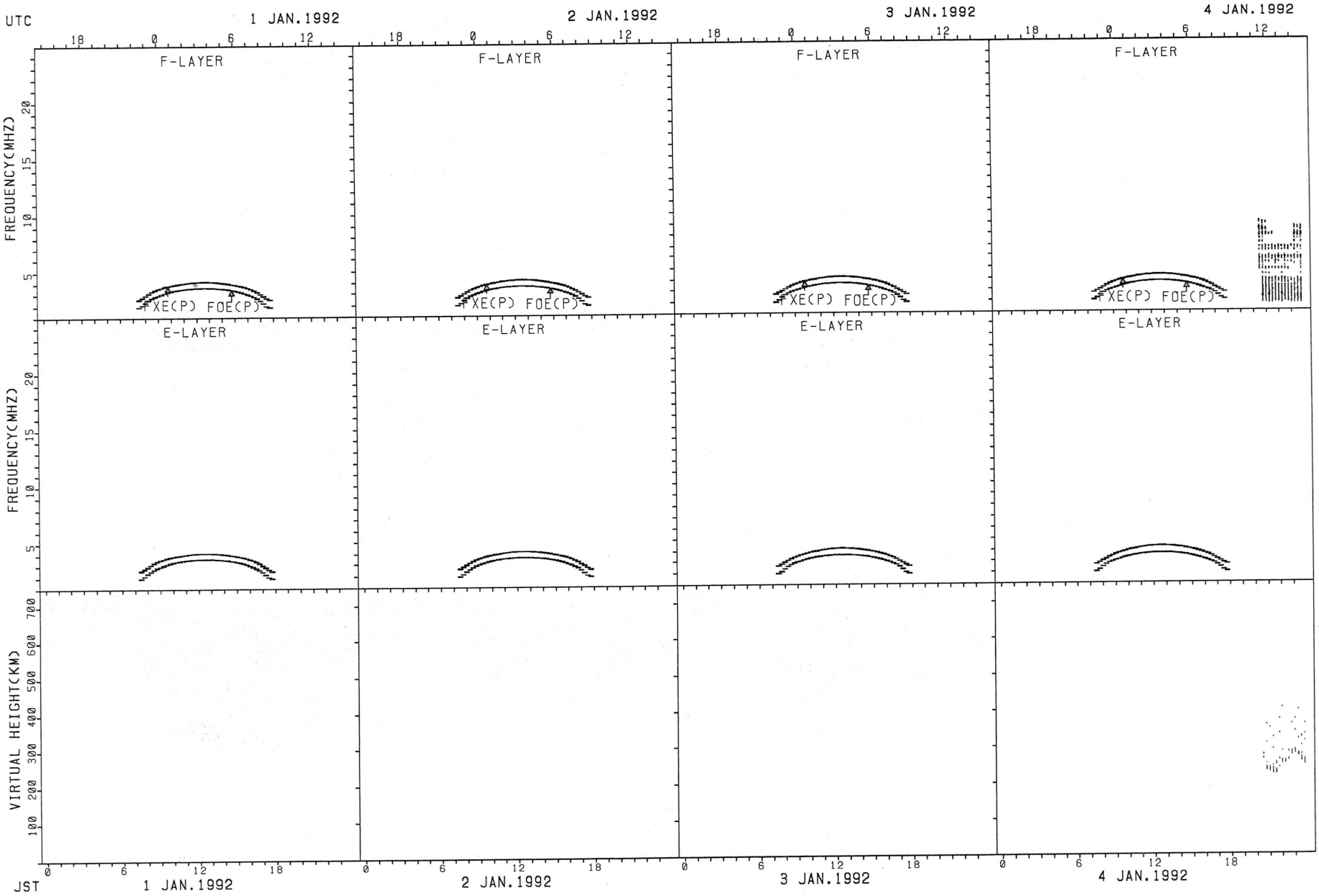


FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


SUMMARY PLOTS AT YAMAGAWA
UTC
25 JAN.1992
26 JAN.1992
27 JAN.1992
28 JAN.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

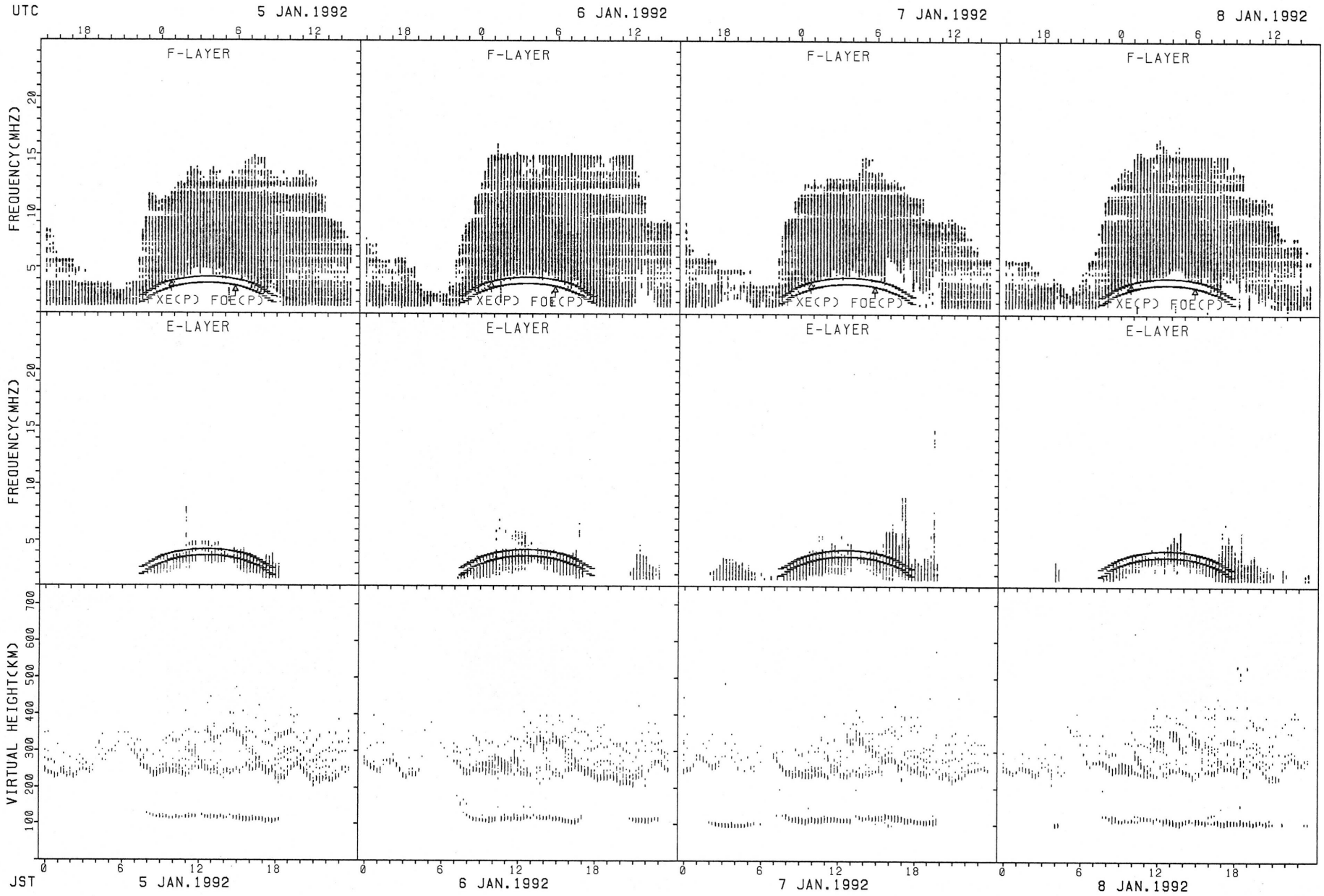

SUMMARY PLOTS AT YAMAGAWA
UTC
29 JAN.1992
30 JAN.1992
31 JAN.1992
F-LAYER
E-LAYER
FXE(P) FOE(P)
FREQUENCY(MHZ)
VIRTUAL HEIGHT(KM)
JST
FXE(P); PREDICTED VALUE FOR FXE
FOE(P); PREDICTED VALUE FOR FOE

SUMMARY PLOTS AT OKINAWA

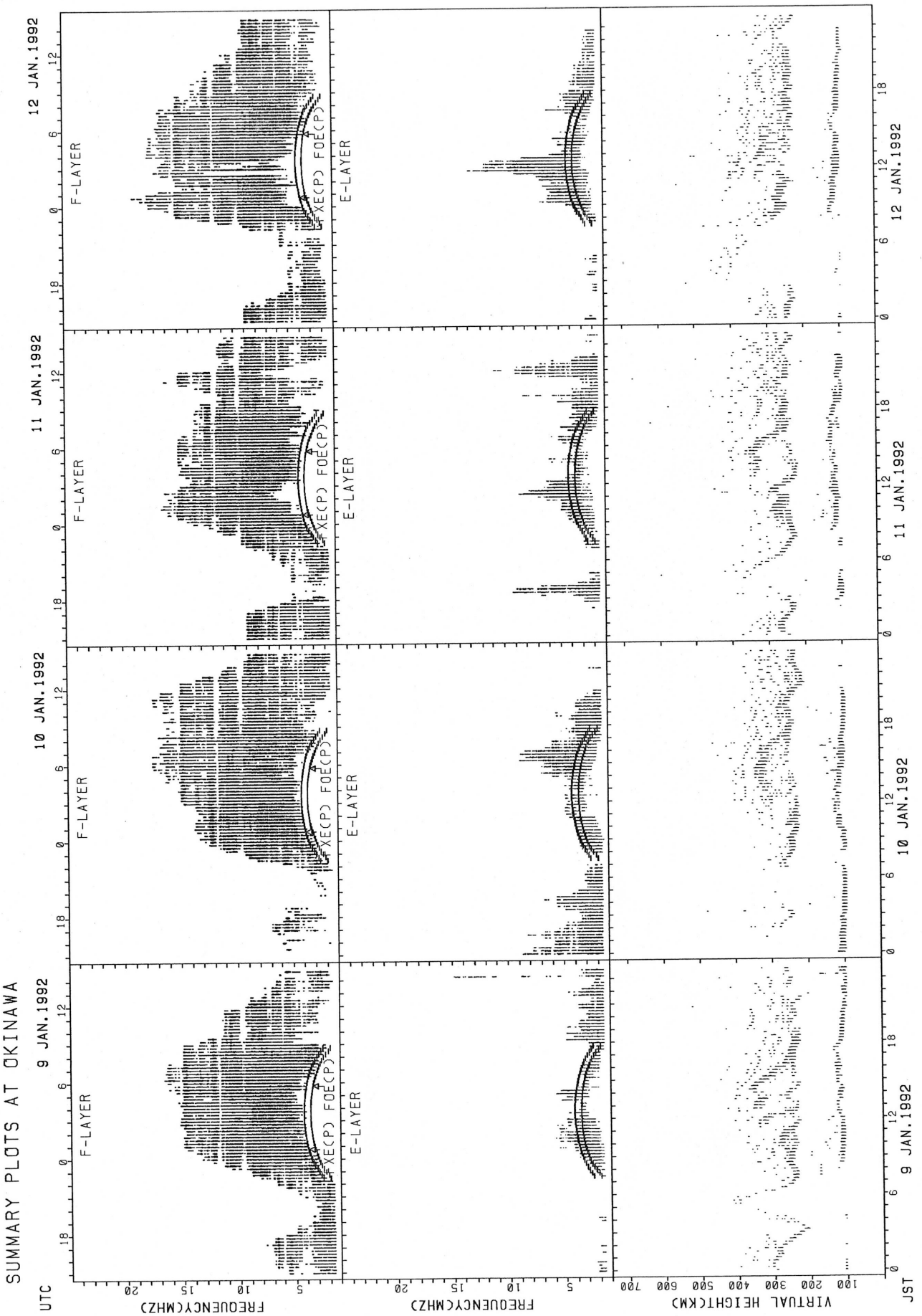


FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE

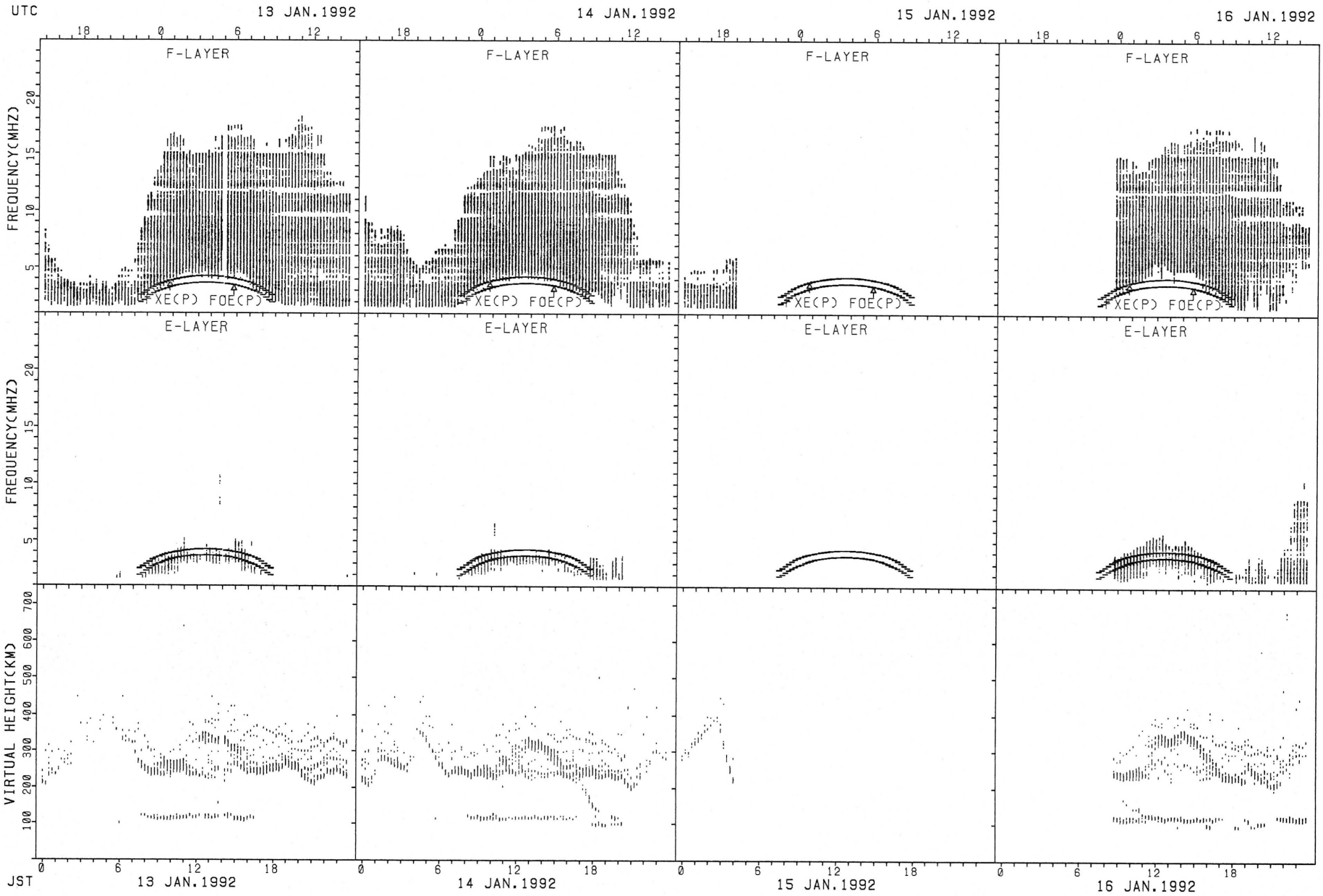
SUMMARY PLOTS AT OKINAWA



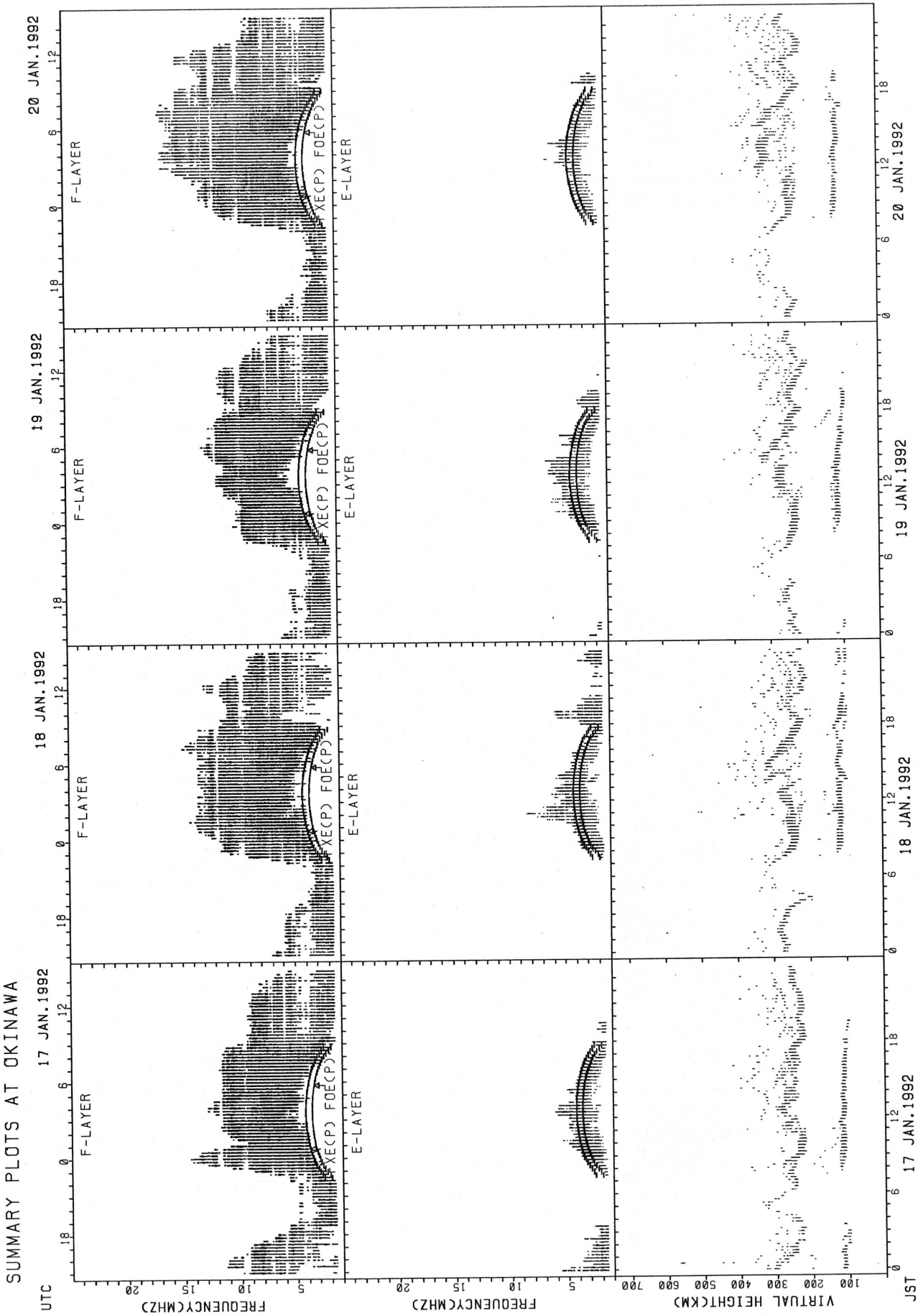
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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

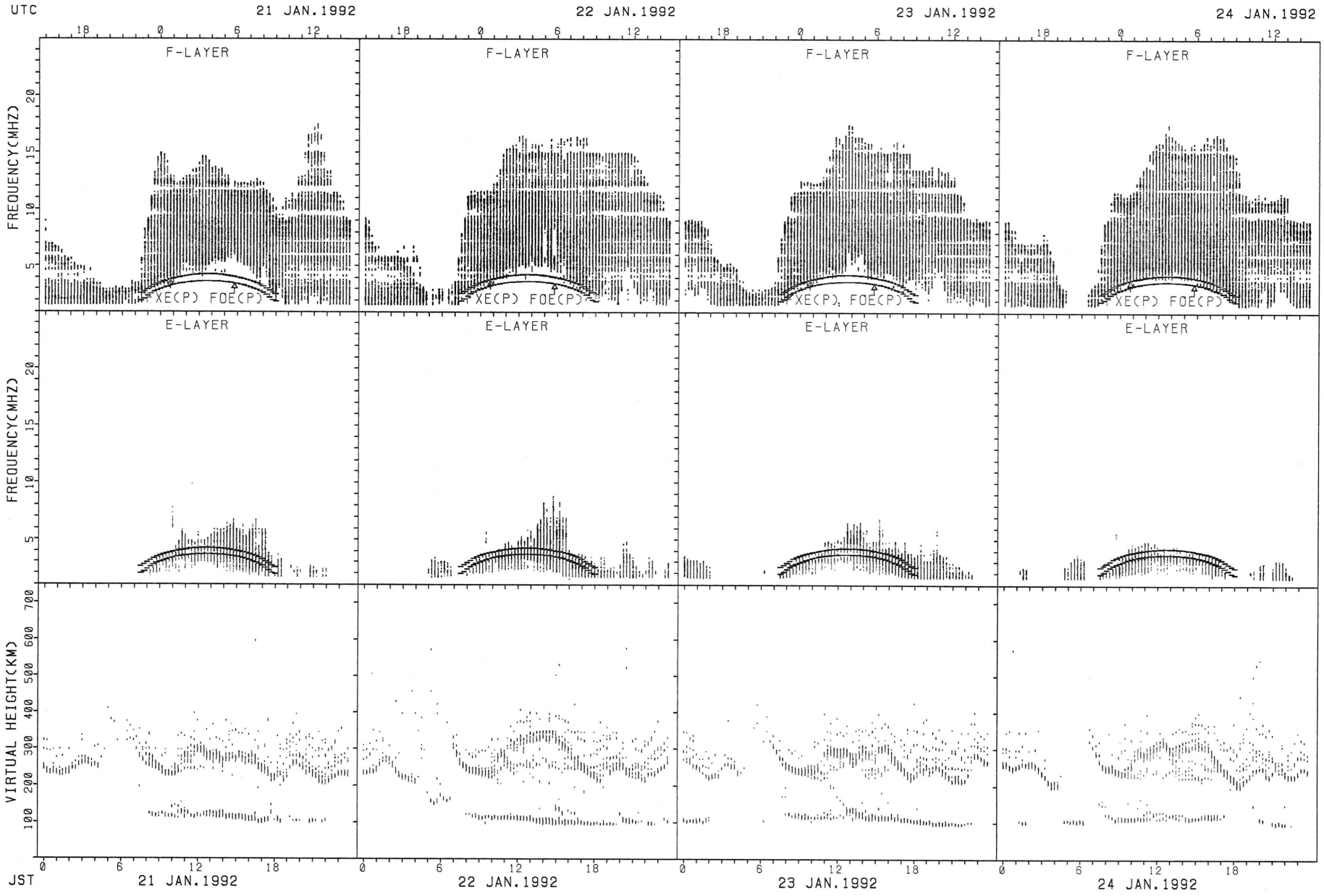
SUMMARY PLOTS AT OKINAWA



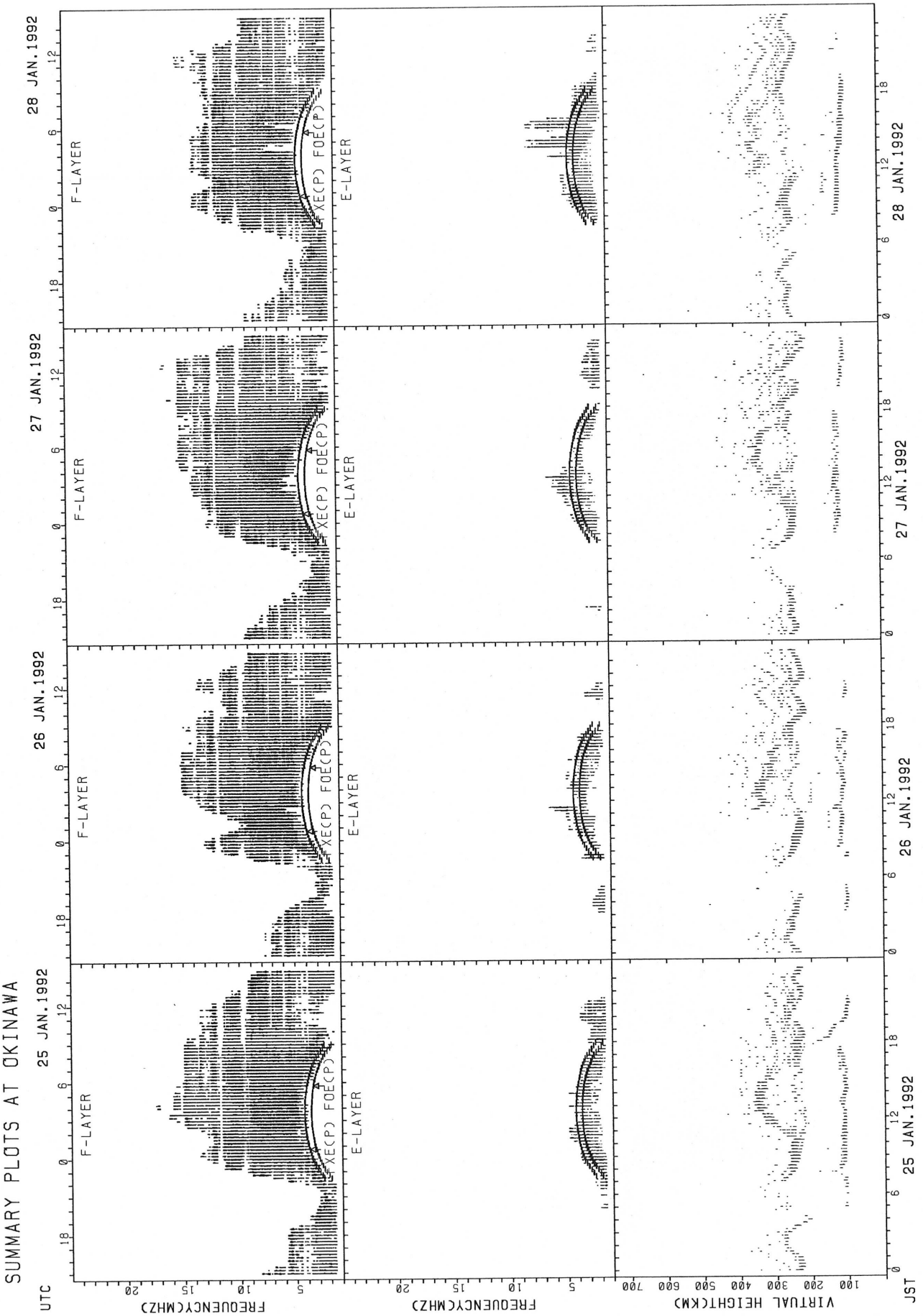
FXE(P): PREDICTED VALUE FOR FXE
FOE(P): PREDICTED VALUE FOR FOE


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

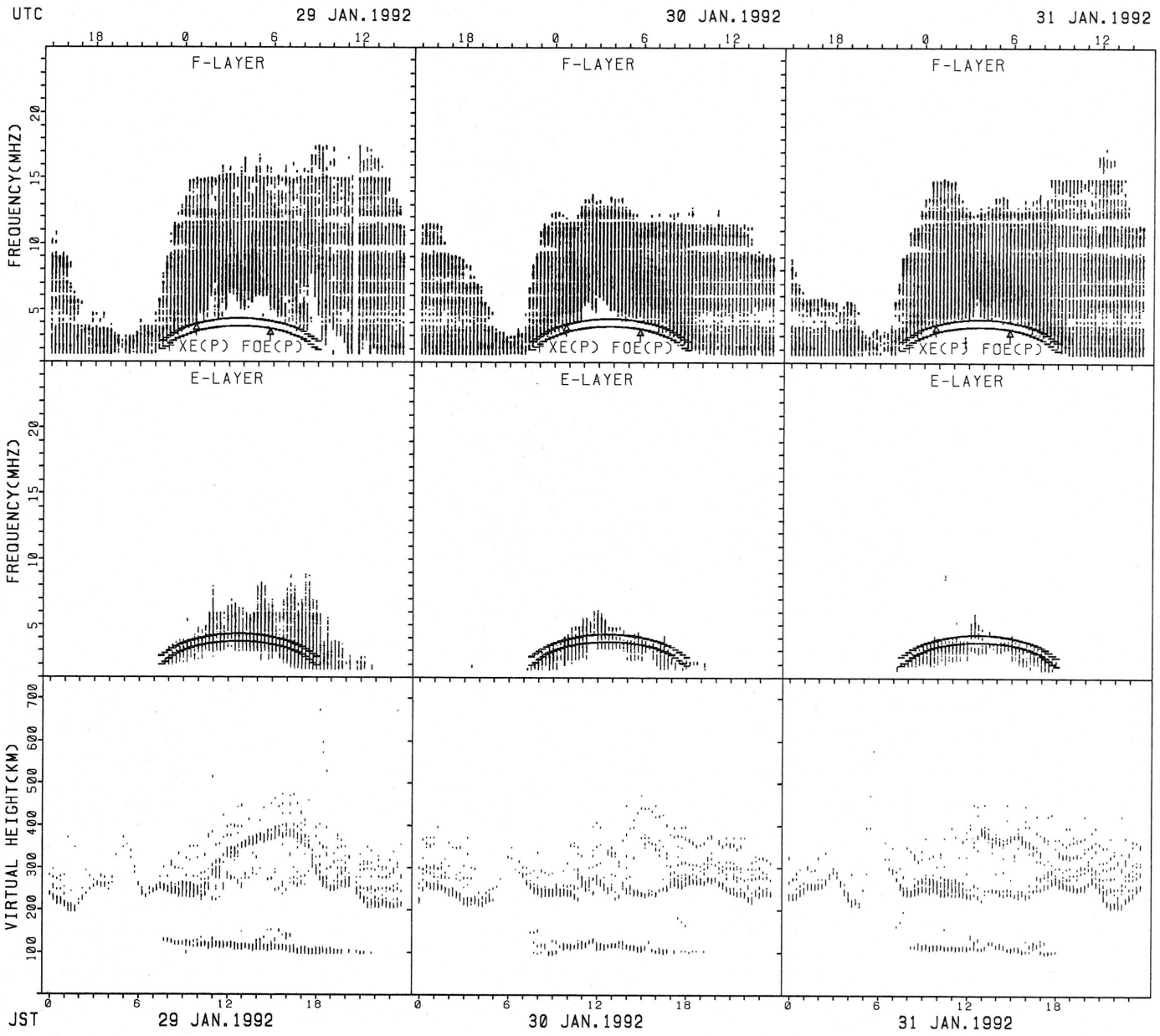
SUMMARY PLOTS AT OKINAWA



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


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

SUMMARY PLOTS AT OKINAWA



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

MONTHLY MEDIANS OF H'F AND H'ES

JAN. 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								21	30	30	31	31	31	31	31	30	30	25	12					
MED								258	244	232	234	238	240	246	242	242	255	270	277					
U Q								280	252	238	240	242	246	254	252	248	262	284	284					
L Q								221	234	228	230	232	232	238	236	236	244	260	260					

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	10							11		11								12	12	12	10	13	15	13
MED	107							117		143								111	111	113	113	115	113	109
U Q	111							147		165								117	114	117	123	121	121	116
L Q	105							111		123								110	109	108	109	111	107	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									31	31	31	31	31	31	31	30	24	21						
MED									246	250	244	240	252	258	264	256	259	296						
U Q									258	256	256	250	260	278	276	270	269	317						
L Q									240	240	238	234	240	250	254	244	253	269						

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	11		10							15	19	13	16	17	12	12		16		10				12
MED	105		105							117	115	115	116	115	115	117		107		108				107
U Q	111		107							119	119	119	120	124	117	125		114		123				109
L Q	103		103							113	113	113	113	111	111	110		103		105				105

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								14	31	31	31	31	31	31	30	31	30	29	18					
MED								261	234	248	250	244	256	258	274	254	260	282	272					
U Q								272	250	254	260	250	264	282	286	264	270	299	286					
L Q								254	228	240	240	238	244	246	260	246	252	265	262					

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		10						11	17	19	23	22	21	20	16	15	16	19	16	11	13	11	12	
MED		105						113	119	117	115	115	115	116	112	113	113	107	105	111	107	109	106	
U Q		109						161	129	125	125	119	122	119	118	119	120	113	108	113	113	111	114	
L Q		103						109	116	113	113	111	110	113	111	107	104	99	103	103	103	101	103	

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

MONTHLY MEDIANS OF H'F AND H'ES

JAN. 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									30	31	31	31	31	30	31	28	31	29	30	29	24	14		
MED									247	238	246	256	252	253	272	272	254	248	264	288	278	278		
U Q									262	244	252	268	268	286	310	296	268	271	274	300	304	290		
L Q									238	232	234	242	240	244	258	254	246	239	254	264	260	256		

H'ES

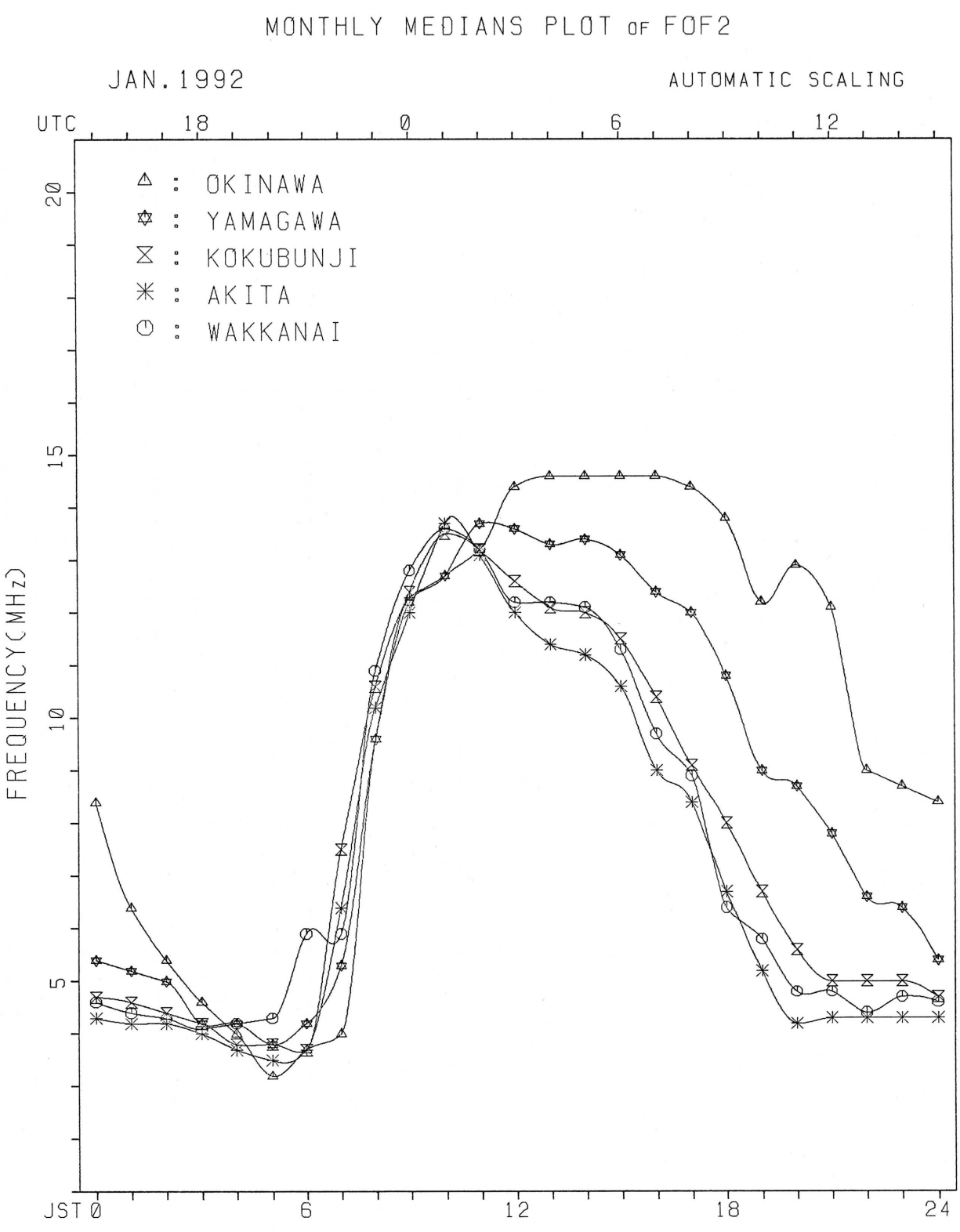
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											22	22	23	19	20	22	17	13	17	18	12		10	
MED											117	118	117	117	115	114	113	107	103	111	107		105	
U Q											125	121	125	121	117	121	116	118	111	117	113		115	
L Q											113	113	113	113	111	109	104	104	101	105	102		99	

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	14								24	26	26	26	25	21	26	26	26	26	26	26	26	24	20	18
MED	304								253	244	246	258	306	328	324	328	300	265	252	274	285	258	275	293
U Q	332								262	252	254	276	321	348	338	340	332	292	272	286	298	275	299	306
L Q	276								246	236	238	246	264	272	300	302	290	250	244	262	262	241	254	274

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	19	24	17	22	21	21	15	17	16	16	13	15	10	
MED										119	119	122	119	119	115	117	119	109	109	107	107	107	106	
U Q										131	143	130	124	121	127	125	121	119	115	116	112	111	111	
L Q										117	115	119	115	113	111	113	109	104	102	102	104	103	101	


MONTHLY MEDIANS PLOT OF FOF2
JAN. 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

JAN. 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 43	X 46	X 48	X 43	47	X 46	X 46											X 97	X 86	X 70	X 65	X 55	X 52	X 51
2	X 49	X 52	X 57	X 44	X 33	X 35	X 40											X 90	X 90	X 79	X 71	X 63	X 66	X 68
3	X 47	X 43	X 43	X 41	X 42	X 44	X 47											X 98	X 82	X 64	X 59	X 54	X 49	X 51
4	X 49	X 46	X 51	X 56	X 44	X 35	X 35												X 100	X 63	X 45	X 46	X 51	X 51
5	X 50	X 46	X 46	X 46	X 48	X 40	X 33												X 101	X 80	X 63	X 52	X 56	X 53
6	X 45	X 48	X 50	X 42	X 41	X 42	X 40												X 93	X 70	X 48	X 47	X 47	X 44
7	X 45	X 47	X 44	X 41	X 45	X 43	X 42												X 76	X 71	X 52	X 59	X 53	X 49
8	X 52	X 55	X 51	X 46	X 41	X 41	X 44												X 79	X 68	X 68	X 58	X 55	X 55
9	X 55	X 56	X 52	X 51	X 45	X 46	X 51												X 83	X 66	X 50	X 51	X 50	X 44
10	X 44	X 45	X 45	X 44	X 43	X 46	X 47												X 106	X 84	X 66	X 65	X 57	X 54
11	X 54	X 53	X 48	X 46	X 47	X 46	X 52												X 87	X 65	X 66	X 66	X 71	X 69
12	X 66	X 54	X 52	X 46	X 49	X 49	48												X 77	X 60	X 54	X 51	X 49	X 54
13	X 60	X 33	X 33	X 37	X 37	X 35	X 36												X 111	X 79	X 61	X 61	X 61	X 59
14	X 59	X 59	X 51	X 47	X 46	51	X 52												X 103	X 75	X 57	X 42	X 38	X 39
15	X 39	X 38	X 37	X 39	X 39	X 39	X 37												X 76	X 69	X 48	X 48	X 42	X 42
16	X 36	X 39	X 41	X 42	X 36	X 38	X 40												X 89	X 83	X 46	X 42	X 43	X 44
17	X 46	X 45	X 42	X 39	X 38	X 38	X 39												X 88	X 79	X 63	X 53	X 51	X 48
18	X 53	X 53	X 44	X 45	X 43	X 43	X 42												X 68	X 56	X 54	X 42	X 44	X 43
19	X 39	X 41	X 38	X 39	X 39	X 42	X 43												X 72	X 68	X 63	X 60	X 44	45
20	X 45	X 43	X 36	X 37	X 38	X 41	X 42												X 83	X 74	X 60	X 49	X 45	X 43
21	X 46	X 50	X 45	X 32	X 36	X 38	X 36												X 70	X 61	X 53	48	X 47	X 42
22	X 42	X 44	X 42	X 42	X 42	X 42	X 42												X 76	X 70	X 63	X 52	X 50	X 48
23	X 48	X 50	X 48	X 36	X 36	X 37	X 38												X 81	X 60	X 42	X 43	X 46	X 44
24	X 41	X 43	X 45	X 44	X 37	X 35	X 34												X 65	X 63	X 55	X 52	X 55	X 55
25	X 51	X 50	X 48	X 50	X 41	X 42	X 46												X 77	X 72	X 64	X 58	X 58	X 56
26	X 55	X 52	X 48	X 46	X 45	X 40	X 45												X 72	X 68	X 62	X 54	X 55	X 53
27	X 49	X 48	X 48	X 48	X 42	X 44	X 45												X 70	X 66	X 71	X 76	X 75	X 63
28	X 54	X 52	X 54	X 51	X 50	X 50	X 53												X 101	X 89	X 79	X 65	X 64	X 65
29	X 64	X 63	X 64	X 55	X 45	X 49	X 57												X 101	X 97	X 93	X 79	X 65	X 63
30	X 52	X 51	X 52	X 54	X 51	X 38	X 39												X 114	X 107	X 96	X 78	X 74	X 79
31	X 75	X 75	X 73	X 63	62	61	X 66												X 103	X 102	X 96	X 89	X 67	X 67
	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											3	31	31	31	31	31	31
MED	X 49	X 48	X 48	X 44	X 42	X 42	X 42											X 97	X 83	X 70	X 62	X 54	X 52	X 51
U Q	X 54	X 53	X 51	X 48	X 46	X 46	X 47											X 98	X 101	X 79	X 66	X 63	X 61	X 59
L Q	X 45	X 44	X 43	X 41	X 38	X 38	X 39											X 90	X 76	X 65	X 53	X 48	X 47	X 44

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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	37	40	42	37	F 38	40	40	71	107	116	134	133	137	123	128	117	108	91	80	64	59	48	46	45
2	43	46	51	38	27	30	34	74	117	108	137	138	129	119	126	120	109	84	84	73	65	58	60	62
3	41	37	37	35	36	38	41	78	122	117	129	125	133	129	126	124	105	92	76	59	53	48	43	45
4	43	40	45	50	38	29	30	69	104	124	134	135	127	127	123	109	99	93	94	57	39	40	45	45
5	44	40	40	40	42	34	27	61	101	123	132	131	134	126	129	118	111	103	95	74	57	46	50	47
6	39	42	44	36	35	36	34	66	106	136	151	147	124	129	127	111	94	88	87	64	43	41	41	38
7	39	41	38	35	39	37	36	68	110	141	138	114	105	102	109	109	95	89	70	65	45	53	47	43
8	46	49	45	40	35	35	38	74	122	133	137	H 137	142	137	129	123	112	103	73	62	62	52	49	49
9	49	50	46	45	39	40	45	72	105	138	156	140	131	128	126	114	98	90	77	60	44	45	44	38
10	38	39	39	38	37	40	41	76	108	134	144	146	143	135	138	133	114	99	100	78	60	59	50	48
11	48	47	42	40	41	39	46	84	121	129	U R 157	150	140	135	131	120	111	102	81	59	60	60	65	63
12	61	48	46	V 40	43	43	F 40	62	H 106	147	147	126	132	133	131	121	93	79	71	54	48	45	43	48
13	54	27	27	31	31	30	30	72	121	135	150	140	127	121	130	125	112	113	105	73	55	55	55	53
14	53	53	45	41	40	42	46	64	96	135	138	137	123	120	118	108	96	98	97	69	51	36	32	33
15	33	32	31	33	33	33	31	57	100	137	129	112	119	121	123	117	105	82	70	63	42	42	36	36
16	30	33	35	36	30	32	34	62	106	112	133	142	116	111	I A 126	122	105	93	82	77	40	36	37	38
17	40	39	36	33	32	32	33	57	103	124	127	109	108	102	110	113	96	89	82	J R 73	57	46	45	42
18	47	47	38	39	37	37	36	66	89	112	127	121	111	105	106	106	92	81	62	50	48	36	38	37
19	33	35	32	33	33	36	37	58	83	104	118	112	94	101	99	91	70	65	66	62	57	F 52	38	F 35
20	39	37	30	31	32	36	36	62	90	114	134	129	116	119	126	116	92	75	77	68	54	42	39	37
21	40	44	39	27	30	32	30	59	92	125	128	124	116	114	101	97	81	74	64	55	47	39	41	36
22	36	38	36	36	36	36	36	67	103	115	140	130	131	111	114	109	92	84	70	64	57	46	44	41
23	42	44	42	30	30	31	32	66	96	118	132	127	122	112	116	107	89	90	75	54	36	37	40	38
24	35	37	39	38	31	29	28	61	90	109	133	139	127	106	100	104	91	68	59	57	49	46	48	49
25	45	44	42	44	35	36	40	61	78	101	128	130	126	124	121	111	96	85	71	66	58	52	52	50
26	49	46	42	40	39	34	39	68	H 84	101	125	130	116	112	106	99	98	92	66	62	56	48	49	47
27	43	42	42	42	36	38	39	75	93	102	124	128	117	115	110	122	115	87	64	60	65	70	69	57
28	48	46	48	45	44	44	47	88	105	111	126	123	118	119	119	111	106	102	95	83	73	59	58	59
29	58	57	58	49	39	43	51	89	111	124	143	139	133	129	127	123	110	105	95	91	87	73	59	57
30	46	45	46	48	45	33	33	74	108	133	137	140	139	125	125	125	116	R 111	108	R 101	90	S 72	68	73
31	69	69	67	57	F 54	F 54	60	87	117	136	140	140	134	125	118	117	110	105	97	96	90	83	61	61
	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	43	42	42	38	36	36	36	68	105	124	134	131	127	121	123	116	99	90	77	64	56	48	46	45
U Q	48	47	45	42	39	40	41	74	110	135	140	140	133	128	127	122	110	102	95	73	60	58	55	53
L Q	39	38	37	35	32	32	33	62	93	112	128	125	116	112	110	109	93	84	70	59	47	42	41	38

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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		L									
2											L		L		U L 600	L								
3											L		L	L	L									
4													L	L										
5												L			U L 600									
6								L		L		L		L										
7															U L 575									
8												L	L	L	L									
9											L			L	L									
10										L					L									
11										L	L 500			L										
12										L	L	L	L											
13												L		L										
14											L	L												
15													L	L	L									
16											L	L	L											
17											L		L	L	L									
18										L		L	L		L									
19											L	L	L	L										
20									U L 330	L	L	L		L	L									
21										L	L	L	L	L										
22											L	L	L	L	L									
23										L	L	L	L		L									
24											L	L	L	L										
25											L	L	L	L										
26											L	L	L		L									
27											L	L		L	L	L								
28											L			L		L								
29											L			L	L	L								
30															L									
31															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				3									
MED									U L 330		L 500				U L 600									
U O															U L 600									
L O															U L 575									

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	A	315	340	350	355	360	A 320	295	R 215							
2								H 170	260	310	345	355	370	365	330	290	A							
3								185	265	315	350	370	370	365	340	300	225							
4								165	270	315	340	360	375	365	340	295	235	B						
5								B	255	315	330	360	380	365	340	A	220	B						
6								170	255	310	345	A	360	A 355	A	285	A	B						
7								170	260	320	345	360	365	345	340	305	U A 230	B						
8								B	260	A	340	355	360	345	330	290	230	B						
9								H 180	270	325	345	350	A 350	340	320	300	220	B						
10								155	260	A 295	345	A	350	340	340	305	230	B						
11								175	250	305	A 340	A	A	A	A	310	225	B						
12								A	A	A	R 335	345	360	350	330	290	235	B						
13								B	250	A	A	A	360	A 340	A 315	A	A	B						
14								175	250	A	340	365	365	350	335	295	H 220	B						
15								B	A 250	315	350	355	365	355	335	A 285	250	B						
16								170	260	305	340	360	360	345	320	A	A	B						
17								B	250	300	A	A	345	A	A	275	225	B						
18								150	255	300	330	340	340	335	315	285	245	H 160						
19								150	255	300	330	340	A	A	335	A	240	B						
20								A	255	300	A	355	355	A	A	300	A	B						
21								B	250	305	335	350	350	345	325	A	A	B						
22								B	235	305	340	360	350	340	A	300	245	H 155						
23								165	245	310	330	A	360	A 350	330	290	245	B						
24								165	255	315	345	360	365	350	340	300	240	B						
25								145	250	A	A	360	A	355	A	A	245	A						
26								165	270	335	365	370	370	360	350	320	260	H 180						
27								150	270	330	350	365	360	355	340	310	260	165						
28								B	255	310	A	360	365	360	340	305	260	155						
29								H 190	285	A	360	375	385	375	360	320	270	170						
30								170	270	320	355	380	U A 380	360	A	310	260	A						
31								190	270	330	350	A	A	370	350	310	265	200						
	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	29	25	26	24	27	27	24	25	25	7						
MED								170	255	310	342	360	360	355	335	300	240	165						
U Q								175	268	318	350	362	370	360	340	308	255	180						
L Q								160	250	305	340	352	355	345	328	290	225	155						

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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 15	J A 18	E B 13	19	E B 16	E B 15	22	J A 22	J A 44	G 27	35	G 22	40	43	35	G	23	E B 17	E B 14	E B 16	E B 14	E B 14	E B 14	J A 26
2	J A 22	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	G	G	G	G	38	46	42	37	39	48	J A 55	E B 14	E B 14	E B 15	E B 15	22	E B 13
3	E B 14	J A 18	E B 14	E B 14	E B 13	J A 18	J A 20	G	G	J A 53	G	G	G	G	G	G	G 18	J A 35	J A 23	E B 14	E B 15	E B 15	E B 14	E B 14
4	E B 13	J A 25	J A 17	E B 15	J A 19	E B 14	E B 15	26	J A 42	J A 42	39	J A 50	39	G	G	J A 35	29	J A 17	19	20	E B 14	E B 14	E B 13	E B 14
5	E B 15	E B 14	E B 14	E B 14	E B 13	20	E B 14	E B 14	G	G	37	G	G	G 36	G	31	G 22	J A 18	E B 15	E B 14	E B 14	E B 13	E B 15	E B 14
6	20	19	E B 13	E B 14	17	E B 15	E B 15	G	G	J A 36	37	J A 39	39	40	J A 50	J A 43	34	E B 14	J A 18	J A 18	J A 14	20	E B 13	20
7	E B 14	E B 13	18	E B 14	E B 14	E B 13	E B 14	J A 17	G	34	39	G 26	40	37	38	32	J A 44	J A 33	J A 33	J A 18	J A 14	J A 19	J A 48	J A 30
8	J A 19	E B 14	E B 13	E B 14	E B 13	E B 14	E B 14	E B 18	G	31	G	G	G	G	J A 52	G 20	J A 36	J A 29	J A 23	20	18	J A 21	32	E B 14
9	E B 13	E B 13	E B 14	E B 13	19	E B 15	E B 14	19	G	G	J A 48	J A 114	J A 56	J A 42	J A 43	G	G	E B 14	20	E B 14	J A 32	J A 35	40	J A 28
10	J A 36	J A 27	J A 26	J A 52	J A 20	J A 18	E B 13	20	G	35	J A 40	35	G 33	G	36	G	G	20	E B 13	J A 18	22	J A 20	J A 24	J A 20
11	J A 25	24	20	E B 13	21	E B 14	E B 14	J A 20	G	34	37	J A 74	J A 78	J A 99	38	36	J A 41	J A 53	J A 51	J A 29	J A 30	J A 26	20	E B 15
12	E B 14	E B 16	J A 23	20	J A 24	J A 19	E B 15	43	J A 70	J A 49	G	G 34	G	G	G 25	G	G J 23	A 28	19	E B 14	27	J A 22	J A 21	J A 22
13	24	J A 20	23	22	J A 20	E B 14	E B 16	E B 17	G	J A 41	J A 42	J A 51	42	43	38	35	J A 73	J A 29	33	J A 24	J A 34	21	E B 15	E B 18
14	E B 15	E B 14	E B 13	E B 13	E B 14	E B 13	E B 14	G	28	33	G	G	G	G 28	G 22	G 19	G	E B 15	E B 15	E B 13	E B 16	E B 15	J A 19	E B 16
15	E B 14	E B 14	E B 14	E B 13	E B 13	E B 14	E B 14	E B 17	27	G	38	39	39	40	41	J A 55	G	J A 18	J A 33	J A 33	J A 19	J A 21	J A 21	E B 16
16	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	23	G	34	41	43	G	92	J A 146	76	45	18	J A 29	J A 28	J A 24	J A 17	J A 17	J A 18
17	J A 24	J A 29	J A 20	J A 20	18	E B 15	E B 14	J A 33	G	34	J A 44	J A 54	J A 36	36	34	G 20	G	E B 17	E B 14	J A 14	20	22	J A 22	E B 14
18	E B 14	E B 13	E B 14	E B 13	E B 13	E B 14	E B 16	J A 19	G	33	J A 44	44	40	37	G	G	G	G	19	J A 16	J A 20	J A 16	J A 22	J A 21
19	E B 14	E B 13	J A 15	E B 14	E B 13	19	E B 15	G	30	34	39	41	J A 50	J A 42	G 32	J A 37	J A 37	E B 16	E B 14	E B 14	J A 15	19	E B 14	E B 14
20	E B 14	E B 13	E B 13	21	J A 19	22	25	J A 22	G	34	J A 42	J A 36	G	J A 42	J A 55	J A 48	J A 43	41	J A 27	21	21	E B 16	E B 15	E B 16
21	E B 14	18	20	E B 14	E B 15	J A 18	E B 15	E B 16	27	J A 38	40	38	48	J A 45	J A 60	J A 34	36	J A 33	J A 34	19	J A 19	E B 15	E B 15	E B 14
22	E B 14	E B 13	E B 14	J A 22	J A 18	18	E B 14	E B 15	G	G	G	G	G	G 32	34	G 28	G	J A 17	J A 21	20	E B 14	J A 25	J A 24	39
23	J A 19	J A 24	J A 19	J A 27	J A 26	21	E B 14	G	G	G	37	J A 39	39	38	G	G	J A 41	J A 86	J A 33	J A 25	E B 14	E B 14	E B 15	E B 14
24	E B 14	20	E B 13	J A 16	E B 14	E B 15	E B 14	G	G	G	38	42	40	G	G 28	J A 33	25	J A 19	J A 18	J A 24	J A 20	21	20	J A 33
25	J A 25	E B 15	E B 15	J A 21	E B 13	J A 18	E B 14	G	G	J A 36	J A 40	J A 40	43	G	36	J A 46	G 25	J A 29	J A 29	J A 24	J A 27	J A 22	J A 20	E B 14
26	E B 15	E B 14	E B 14	E B 13	E B 14	19	18	G	G	G	39	41	G 28	39	G	34	G	J A 21	J A 18	20	33	E B 14	E B 14	E B 14
27	E B 14	E B 13	E B 14	E B 13	E B 14	E B 15	E B 14	G	G	G	38	43	39	G	G 23	G 21	J A 31	J A 21	20	E B 13	E B 15	E B 13	E B 13	E B 13
28	E B 14	E B 15	E B 15	18	E B 14	E B 14	E B 13	E B 16	G	J A 39	J A 40	G 35	J A 39	J A 37	G 25	G	G 18	G	E B 15	22	E B 15	E B 14	E B 13	E B 14
29	E B 14	J A 26	J A 26	J A 19	E B 14	E B 14	E B 14	G	J A 34	J A 42	J A 43	J A 42	J A 46	G	G	G	G	G	J A 18	E B 15	E B 14	E B 14	E B 14	E B 15
30	E B 15	J A 25	23	E B 14	E B 13	E B 14	E B 14	G	G	34	G	40	40	G 35	36	G 25	J A 27	J A 23	22	25	26	23	23	E B 15
31	E B 14	E B 14	E B 14	E B 16	E B 13	E B 14	E B 14	G	G	G 31	36	J A 42	J A 42	G	G	J A 33	G 21	G 19	E B 13	E B 15	E B 13	E B 16	E B 14	E B 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	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15	E B 14	G	G	34	38	39	39	37	34	31	G	J A 19	19	18	18	17	17	E B 15
U Q	J A 19	J A 20	20	J A 20	J A 19	18	15	20	27	J A 36	J A 40	J A 43	J A 42	J A 42	J A 38	J A 36	J A 37	J A 29	J A 29	J A 24	J A 24	J A 21	J A 22	J A 20
L Q	E B 14	E B 14	E B 14	E B 14	E B 13	E B 14	E B 14	G	G	G	G 35	G	G	G	G	G	G	E B 17	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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 15	17	E B 13	E B 13	E B 16	E B 15	E B 14	E B 15	38	G 27	35	G 22	40	39	34	G	G	E B 17	E B 14	E B 16	E B 14	E B 14	E B 14	E B 14
2	17	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	G	G	G	G	37	40	40	G	34	39	23	E B 14	E B 14	E B 15	E B 15	E B 14	E B 13
3	E B 14	E B 14	E B 14	E B 14	E B 13	E B 14	16	G	G	G	G	G	G	G	G	G	G 17	18	20	E B 14	E B 15	E B 15	E B 14	E B 14
4	E B 13	E B 13	16	E B 15	16	E B 14	E B 15	G	G 17	G	35	37	G	G	G	G	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 13	E B 14
5	E B 15	E B 14	E B 14	E B 14	E B 13	E B 14	E B 14	E B 14	G	G	35	G	G	G 33	G	31	G 18	E B 15	E B 15	E B 14	E B 14	E B 13	E B 15	E B 14
6	E B 13	E B 14	E B 13	E B 14	E B 14	E B 15	15	G	G	G 26	35	36	38	39	37	G 25	22	E B 14	E B 13	16	E B 14	E B 14	E B 13	E B 13
7	E B 14	E B 13	E B 14	E B 14	E B 14	E B 13	E B 14	G	G	34	36	G 25	38	36	36	31	36	22	28	16	E B 14	E B 14	36	17
8	E B 14	E B 14	E B 13	E B 14	E B 13	E B 14	E B 14	E B 18	G	31	G	G	G	G	G 21	G 18	G 20	18	E B 14	E B 14	E B 14	18	28	E B 14
9	E B 13	E B 13	E B 14	E B 13	E B 14	E B 15	E B 14	G	G	G	41	73	46	40	40	G	G	E B 14	E B 15	E B 14	E B 15	28	28	E B 14
10	15	15	15	24	E B 14	E B 14	E B 13	G	G	34	G	35	G 31	G	36	G	G	18	E B 13	E B 13	E B 14	16	15	18
11	18	19	E B 14	E B 13	E B 14	E B 14	E B 14	E B 14	G	33	36	51	74	55	35	34	34	34	27	17	16	E B 14	E B 15	E B 15
12	E B 14	E B 16	19	E B 14	E B 13	E B 15	E B 15	34	37	34	G	G 32	G	G	G 24	G	G 20	18	18	E B 14	17	20	18	17
13	E B 14	17	E B 15	E B 15	E B 14	E B 14	E B 16	E B 17	G	37	42	45	40	42	37	32	26	16	20	16	23	18	E B 15	E B 18
14	E B 15	E B 14	E B 13	E B 13	E B 14	E B 13	E B 14	G	27	32	G	G	G	G 28	G 22	G 19	G	E B 15	E B 15	E B 13	E B 16	E B 15	E B 13	E B 16
15	E B 14	E B 14	E B 14	E B 13	E B 13	E B 14	E B 14	E B 17	G 25	G	37	37	38	37	38	40	G	16	30	20	17	21	16	E B 16
16	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	G	G	31	36	41	G	79	A A 146	52	36	E B 13	27	20	17	E B 14	16	E B 14
17	18	20	E B 14	E B 15	E B 13	E B 15	E B 14	E B 16	G	33	35	38	G 29	35	34	G 19	G	E B 17	E B 14	E B 15	E B 15	E B 15	21	E B 14
18	E B 14	E B 13	E B 14	E B 13	E B 13	E B 14	E B 16	G	G	31	43	42	40	35	G	G	G	G	18	E B 15	17	E B 15	18	16
19	E B 14	E B 13	E B 14	E B 14	E B 13	E B 14	E B 15	G	28	33	37	38	35	34	G 30	31	G 20	E B 16	E B 14	E B 14	E B 13	E B 14	E B 14	E B 14
20	E B 14	E B 13	E B 13	E B 13	17	15	E B 13	16	G	31	34	G 28	G	38	40	G 28	33	30	E B 14	E B 16	E B 14	E B 16	E B 15	E B 16
21	E B 14	E B 14	E B 13	E B 14	E B 15	E B 13	E B 15	E B 16	27	G 27	37	37	40	38	56	31	29	23	33	16	17	E B 15	E B 15	E B 14
22	E B 14	E B 13	E B 14	E B 14	15	E B 14	E B 14	E B 15	G	G	G	G	G	G 32	34	G 28	G	G	17	E B 14	E B 14	18	21	36
23	E B 14	20	E B 13	19	16	E B 13	E B 14	G	G	G	36	37	38	38	G	G	34	33	29	20	E B 14	E B 14	E B 15	E B 14
24	E B 14	E B 13	E B 13	E B 13	E B 14	E B 15	E B 14	G	G	G	37	40	39	G	G 27	G 25	25	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	17
25	17	E B 15	E B 15	E B 13	E B 13	E B 14	E B 14	G	G	32	35	G 33	38	G	34	33	G 22	25	24	18	E B 15	E B 14	E B 14	E B 14
26	E B 15	E B 14	E B 14	E B 13	E B 14	E B 14	E B 14	G	G	G	38	39	G 27	38	G	33	G	G	16	15	24	E B 14	E B 14	E B 14
27	E B 14	E B 13	E B 14	E B 13	E B 14	E B 15	E B 14	G	G	G	36	40	38	G	G 20	G 20	G 18	G	17	E B 13	E B 15	E B 13	E B 13	E B 13
28	E B 14	E B 15	E B 15	E B 13	E B 14	E B 14	E B 13	E B 16	G	G	35	G 30	G 32	G 28	G 23	G	G 17	G	E B 15	E B 13	E B 15	E B 14	E B 13	E B 14
29	E B 14	23	16	16	E B 14	E B 14	E B 14	G	G 22	34	G 27	G 34	G 35	G	G	G	G	G	E B 16	E B 15	E B 14	E B 14	E B 14	E B 15
30	E B 15	15	E B 14	E B 14	E B 13	E B 14	E B 14	G	G	34	G	39	40	G 34	34	G 25	G 21	20	E B 14	E B 15	19	E B 15	E B 16	E B 15
31	E B 14	E B 14	E B 14	E B 16	E B 13	E B 14	E B 14	G	G	G 27	G 32	38	38	G	G	G 26	G 20	E B 14	E B 13	E B 15	E B 13	E B 16	E B 14	E B 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	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	35	37	38	34	G	G	G	E G 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14
U O	15	15	15	E B 15	14	E B 15	E B 15	G	G	33	37	39	40	38	36	31	26	20	20	16	17	16	16	16
L O	E B 14	E B 13	E B 13	E B 13	E B 13	E B 14	E B 14	G	G	G	G	G	G	G	G	G 26	G 20	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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	15	14	13	13	16	15	14	15	15	17	21	20	20	31	21	18	18	17	14	16	14	14	14	14
2	13	15	14	15	14	14	14	14	16	17	21	23	22	22	19	18	17	13	14	14	15	15	14	13
3	14	14	14	14	13	14	14	15	17	18	27	25	28	23	22	18	15	15	14	14	15	15	14	14
4	13	13	14	15	14	14	15	15	15	17	19	21	24	18	21	19	16	14	14	14	14	14	13	14
5	15	14	14	14	13	14	14	14	15	17	18	21	34	19	19	18	15	15	15	14	14	13	15	14
6	13	14	13	14	14	15	15	14	14	18	17	17	21	20	18	16	14	14	13	12	14	14	13	13
7	14	13	14	14	14	13	14	14	13	15	15	18	21	13	15	13	14	13	14	14	14	14	14	15
8	14	14	13	14	13	14	14	18	14	16	18	20	18	18	17	13	13	14	14	14	14	14	15	14
9	13	13	14	13	14	15	14	14	14	15	16	24	28	24	22	16	16	14	15	14	15	13	13	14
10	15	13	13	14	14	14	13	13	16	17	18	28	25	30	25	23	18	13	13	13	14	14	13	14
11	13	13	14	13	14	14	14	14	16	21	25	33	27	29	22	20	18	15	13	13	13	14	15	15
12	14	16	14	14	13	15	15	14	17	20	22	24	26	27	20	18	17	14	14	14	14	15	14	14
13	14	15	15	15	14	14	16	17	16	17	19	23	29	28	26	19	17	13	13	13	16	15	15	18
14	15	14	13	13	14	13	14	14	18	21	21	25	29	20	20	14	16	15	15	13	16	15	13	16
15	14	14	14	13	13	14	14	17	16	19	19	23	26	26	19	20	17	13	14	13	14	16	13	16
16	14	15	15	14	14	14	14	14	16	15	14	17	19	20	18	17	16	13	14	14	13	14	13	14
17	14	13	14	15	13	15	14	16	15	16	16	18	21	21	15	16	19	17	14	15	15	15	14	14
18	14	13	14	13	13	14	16	13	16	17	18	17	18	21	21	17	17	13	13	15	13	15	14	13
19	14	13	14	14	13	14	15	13	15	16	22	21	21	21	19	18	15	16	14	14	13	14	14	14
20	14	13	13	13	13	13	13	14	13	15	18	20	17	19	16	17	14	16	14	16	14	16	15	16
21	14	14	13	14	15	13	15	16	14	14	19	21	20	20	18	14	13	13	17	14	15	15	15	14
22	14	13	14	14	13	14	14	15	16	16	19	26	22	21	22	17	16	12	13	14	14	13	14	13
23	14	13	13	14	13	13	14	13	16	17	24	22	26	32	25	E S 20	17	13	13	13	14	14	15	14
24	14	13	13	13	14	15	14	14	17	17	22	26	20	24	21	17	17	15	14	14	14	14	14	15
25	13	15	15	13	13	14	14	13	13	17	18	21	24	21	20	15	15	13	14	14	15	14	14	14
26	15	14	14	13	14	14	14	14	14	19	18	19	18	17	19	18	14	13	13	13	14	14	14	14
27	14	13	14	13	14	15	14	14	16	18	17	22	21	19	14	13	13	13	15	13	15	13	13	13
28	14	15	15	13	14	14	13	16	14	16	18	17	21	18	17	17	14	13	15	13	15	14	13	14
29	14	14	13	13	14	14	14	15	16	16	17	17	17	19	20	17	17	15	16	15	14	14	14	15
30	15	14	14	14	13	14	14	13	16	16	21	21	22	20	18	16	15	14	14	15	14	15	16	15
31	14	14	14	16	13	14	14	16	16	17	18	19	17	19	19	16	13	14	13	15	13	16	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	14	14	14	14	14	14	14	14	16	17	18	21	21	21	19	17	16	14	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	15	16	18	21	24	26	24	21	18	17	15	14	14	15	15	15	15
L Q	14	13	13	13	13	14	14	14	14	16	18	19	20	19	18	16	14	13	13	13	14	14	13	14

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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	255	265	270	270	F 250	270	295	320	340	325	310	305	295	295	305	295	310	300	315	320	320	300	285	275
2	270	280	325	310	285	265	280	315	345	320	305	300	295	280	285	290	310	285	300	300	285	275	285	320
3	330	280	270	265	275	280	305	320	340	310	310	290	290	290	280	295	290	300	300	305	290	275	270	280
4	255	260	275	305	340	260	245	320	310	295	300	290	280	280	280	290	290	290	320	330	265	260	275	285
5	305	275	270	260	290	315	270	310	315	310	295	305	280	275	285	280	295	290	305	295	295	270	290	300
6	270	275	295	300	265	255	305	300	320	310	315	315	295	290	290	305	300	295	310	355	295	285	285	280
7	265	280	280	260	275	305	275	315	315	320	320	315	290	285	290	310	300	310	305	320	290	290	295	290
8	280	290	295	275	310	255	275	295	335	320	300	H 280	285	285	275	280	290	305	290	280	295	280	255	260
9	270	275	270	280	240	255	300	315	305	300	305	290	285	280	285	300	305	305	315	310	300	295	305	305
10	290	285	295	285	290	285	310	325	330	315	310	295	290	290	285	295	300	295	315	315	285	285	260	285
11	285	290	280	255	250	250	295	330	330	305	U R 320	310	290	280	285	290	290	305	325	295	295	280	285	285
12	285	245	250	V 230	225	240	F 235	270	H 280	300	310	290	290	295	295	320	310	295	315	290	300	290	255	270
13	340	340	235	250	245	240	255	305	330	320	310	310	295	275	295	295	300	285	335	280	280	240	245	260
14	270	285	275	245	240	265	305	340	325	330	310	310	300	290	300	310	305	310	315	340	335	310	260	280
15	265	255	235	255	270	275	265	275	310	325	315	300	290	290	290	290	310	310	310	325	285	305	285	310
16	280	250	265	320	265	275	275	305	345	310	305	325	305	290	I A 300	305	305	300	310	325	335	275	270	275
17	275	280	285	285	260	275	290	290	320	325	335	320	320	305	305	315	315	315	315	J R 325	320	275	290	280
18	285	305	290	270	275	300	300	330	345	330	340	315	315	300	300	315	315	320	320	315	320	320	295	310
19	310	295	290	275	275	275	325	330	340	325	340	330	340	310	310	330	325	300	320	310	320	F 320	315	F 280
20	285	315	265	255	260	260	310	325	345	320	315	325	300	285	290	300	320	295	310	310	290	260	250	265
21	280	305	350	255	250	270	280	305	320	315	320	320	305	305	310	315	320	320	320	310	310	300	290	285
22	280	280	285	275	300	275	275	315	335	300	330	310	310	295	300	300	305	305	295	320	305	280	290	265
23	280	300	315	265	255	260	280	325	340	310	320	315	305	290	295	315	315	310	320	325	310	280	285	285
24	275	280	300	335	310	300	285	325	330	310	315	310	310	315	295	305	325	320	300	315	300	285	290	300
25	300	300	300	290	270	265	325	345	335	320	315	310	295	285	285	285	300	305	295	305	305	275	285	290
26	300	300	305	300	305	280	320	340	345	320	300	310	295	295	300	300	300	320	310	305	325	285	285	305
27	305	290	295	300	250	255	275	330	345	315	310	295	285	275	270	280	295	300	295	250	265	295	305	305
28	280	270	265	265	265	260	275	320	320	320	305	285	275	275	275	275	280	290	295	295	300	295	275	285
29	290	290	305	320	245	255	310	345	335	315	305	295	280	275	270	275	275	275	290	290	300	305	295	300
30	285	255	270	280	320	275	285	330	325	310	295	290	285	275	275	265	275	R 280	285	R 305	300	S 270	270	295
31	295	305	290	275	F 280	F 265	295	320	310	305	300	290	280	275	270	270	275	280	280	285	295	315	275	270
	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	280	280	285	275	270	265	285	320	330	315	310	310	295	290	290	295	300	300	310	310	300	285	285	285
U Q	295	300	295	300	290	275	305	330	340	320	320	315	305	295	300	310	310	310	315	320	310	300	290	300
L Q	270	275	270	260	250	255	275	305	320	310	305	290	285	280	280	285	290	290	295	295	290	275	270	275

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L		L		L									
2											L		L		U L 350	L								
3											L		L	L	L									
4													L	L										
5												L			U L 330									
6								L		L		L		L										
7															U L 360									
8												L	L	L	L									
9											L			L	L									
10										L					L									
11										L	L 375		A	L										
12										L	L	L	L											
13												L		L										
14											L	L												
15													L	L	L									
16											L	L	L	A	A									
17											L		L	L	L									
18										L		L	L		L									
19											L	L	L	L										
20									U L 390	L	L	L		L	L									
21										L	L	L	L	L	A									
22											L	L	L	L	L									
23										L	L	L	L		L									
24											L	L	L	L										
25											L	L	L	L										
26											L	L	L		L									
27											L	L		L	L	L								
28											L			L		L								
29											L			L	L	L								
30															L									
31															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				3									
MED									U L 390		L 375				U L 350									
U Q															U L 360									
L Q															U L 330									

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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											250		300		270									
2											260		L 295		300	L 310								
3											260		300	285	300									
4													L 310	305										
5												250			300									
6								255		270		250		300										
7															300									
8												310	300	300	310									
9											270			310	285									
10										250					300									
11										260	265		A 270	310										
12										280	255	240	305											
13												240		315										
14											255	245												
15													285	300	300									
16											275	255	245	A	A									
17											240		250	240	255									
18										255		265	235		L 280									
19											240	250	240	280										
20									225	255	255	245		250	275									
21										260	250	250	270	270	250									
22											255	240	260	230	290									
23										265	240	250	255		280									
24											265	255	250	240										
25											265	255	260	305										
26											280	260	305		275									
27											250	260		305	L 330	295								
28											270			315		U L 310								
29											260			315	330	300								
30															300									
31															330									
	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	8	20	17	18	18	20	4								
MED								255	225	260	258	250	270	300	300	305								
U Q										268	265	258	300	310	300	L 310								
L Q										255	250	245	250	270	278	298								

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

IONOSPHERIC DATA STATION KOKUBUNJI

JAN. 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

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	300	335	300	310	360	310	230	245	225	220	230	230	230	240	235	240	230	215	230	235	235	240	285	275
2	310	290	235	225	265	345	315	250	215	220	230	230	235	235	235	230	240	235	255	230	255	260	295	230
3	220	285	305	305	300	305	280	240	230	220	230	225	230	230	235	245	225	220	225	230	250	240	310	295
4	325	325	320	255	225	330	375	250	235	230	235	240	230	235	240	230	230	250	230	200	255	330	305	265
5	255	310	300	295	255	240	260	260	230	230	240	240	240	H 235	230	230	235	225	230	210	230	255	280	240
6	285	315	270	255	330	335	235	H 215	200	235	240	240	230	225	240	240	225	230	235	215	250	280	265	285
7	305	290	285	325	300	250	300	255	245	245	235	225	225	235	230	250	235	230	A 250	225	240	275	I A 270	270
8	295	270	260	275	245	340	305	280	230	240	230	H 230	235	230	235	240	235	230	220	250	245	270	A 370	330
9	305	305	270	275	270	365	260	230	240	240	245	A 255	250	225	245	240	230	230	225	220	240	A 310	A 290	265
10	300	305	290	A 325	265	300	255	240	225	225	230	230	225	240	230	240	230	225	240	210	240	260	260	285
11	290	285	270	350	355	355	265	235	230	220	225	245	I A 240	235	235	230	240	245	240	245	250	275	290	260
12	250	300	320	355	400	410	385	A 335	265	255	245	235	230	240	240	235	215	235	230	230	250	285	335	310
13	235	225	410	380	365	405	380	255	230	235	A 250	235	240	230	250	245	235	260	230	215	270	320	325	320
14	290	265	250	340	365	320	245	230	245	250	230	240	230	230	240	230	230	240	235	210	235	240	315	320
15	330	365	420	365	330	280	305	280	240	240	230	230	235	240	240	250	235	220	260	230	235	270	295	255
16	315	360	325	250	325	305	285	255	225	230	235	250	230	A	A	A 250	240	220	240	230	225	265	310	315
17	330	320	295	275	350	340	265	250	250	230	230	A 235	230	220	220	245	225	230	225	225	230	245	A 270	310
18	295	270	285	310	260	280	275	240	220	230	245	235	230	230	230	240	225	220	230	230	250	240	285	250
19	270	280	270	310	335	320	245	225	225	230	230	240	225	225	240	235	220	230	240	235	235	230	230	295
20	275	250	270	365	360	315	255	H 230	230	H 215	225	230	235	230	A 250	240	240	245	240	215	230	265	315	330
21	310	270	220	E B 325	365	310	300	250	230	235	235	230	230	230	A	235	220	220	A 250	230	230	245	270	270
22	310	305	290	H 265	245	310	315	250	H 230	225	235	230	220	200	230	240	225	225	210	230	230	270	A 280	A
23	310	280	245	A	A 350	350	290	245	225	230	235	230	235	230	220	240	225	A 255	A 230	235	235	295	300	280
24	315	310	285	235	230	275	255	235	230	230	240	245	230	215	220	240	220	220	230	230	240	275	290	260
25	265	270	275	285	240	330	240	220	220	230	235	235	230	230	230	240	230	230	250	250	240	275	275	265
26	260	265	270	260	250	290	250	225	215	225	235	235	230	230	235	235	240	235	215	245	250	255	280	260
27	260	295	285	270	H 315	365	300	230	220	225	240	240	235	225	235	255	235	220	225	310	310	265	250	225
28	255	290	320	300	300	310	270	250	235	235	235	235	230	240	250	240	240	245	240	230	230	240	295	270
29	270	265	250	220	B 330	335	260	235	225	230	230	230	235	225	235	240	240	245	230	250	240	215	240	260
30	260	330	310	270	230	300	290	240	225	230	225	235	H 225	230	225	235	235	240	240	235	230	230	260	265
31	245	260	260	280	H 215	305	265	235	230	240	230	230	230	225	225	240	235	255	250	260	250	230	230	295
	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	30	31	31	31	31	31	31	31	31	31	30	29	31	31	31	31	31	31	31	31	30
MED	290	290	285	286	300	315	270	240	230	230	235	235	230	230	235	240	230	230	230	230	240	265	285	270
U Q	310	310	305	325	350	340	300	250	235	235	240	240	235	235	240	240	235	245	240	235	250	275	305	295
L Q	260	270	270	265	250	300	255	230	225	225	230	230	230	225	230	235	225	220	230	220	230	240	270	260

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	A	A 125	115	115	115	125	115	115	B 155							
2								165	125	120	120	120	120	120	120	120	A							
3								B 155	120	120	125	120	125	115	120	115	125							
4								B 170	120	120	115	115	120	115	115	115	A	B						
5								B	115	115	115	115	120	A 125	120	A	130	B						
6								B 170	115	A 130	A 125	A	A 135	A	A	A 125	A	B						
7								B 150	115	110	110	A 115	120	115	115	A 130	A 135	B						
8								B	120	A	120	115	110	115	115	120	A	B						
9								E B 160	120	115	115	125	120	120	120	120	130	B						
10								B 190	120	120	120	A	A 130	120	120	125	130	B						
11								B 170	125	A 125	A	A	A	A	A	A 120	125	B						
12								A	A	A	A 120	A 130	125	120	120	110	A 130	B						
13								B	125	120	120	120	125	125	120	120	A	B						
14								B 165	125	A	120	120	125	120	120	120	120	B						
15								B	A	115	120	120	120	120	120	115	120	B						
16								B 165	130	120	115	120	115	115	115	A	A	B						
17								B	115	115	115	A	A 130	A	A	120	E B 160	B						
18								125	120	120	120	125	120	115	115	120	125	B 150						
19								135	125	120	120	120	A	A	A 130	A	A 135	B						
20								A	115	115	115	A 130	120	A	A	E A 130	A	B						
21								B	130	A 130	115	115	115	115	115	A	A	B						
22								B	115	115	115	120	120	A 125	A	A	120	B 155						
23								B	120	120	120	A	120	A	125	115	125	B						
24								E B 180	125	120	120	120	A 120	120	A 120	A 125	120	B						
25								B 145	120	A	A	A 135	A	A 115	A	A	A 130	A						
26								B 155	115	115	A 125	A 120	A 120	120	120	120	120	A						
27								B 155	120	115	115	120	115	115	115	115	120	B 145						
28								B	115	115	A	A 130	A 125	A 120	115	110	A 115	E B 185						
29								B 145	A 125	A	A 125	A 130	E A 140	115	115	120	120	120						
30								135	115	110	110	115	115	A 125	A	115	A 130	A						
31								E B 150	115	A 135	A 130	A	A	120	110	A 130	A 120	165						
	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	28	26	28	25	27	25	24	25	23	6						
MED								155	120	120	120	120	120	120	120	120	125	B 150						
U Q								B 170	125	A 120	120	A 125	A 125	A 120	120	A 122	A 130	165						
L Q								145	115	115	115	115	120	115	115	115	120	145						

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

IONOSPHERIC DATA STATION KOKUBUNJI

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

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B		B		B	B			100	105	E G 190	110	140	125	125	G	115	B	B	B	B	B	B	115
		100		105			110	110																
2		B	B	B	B	B	B	G	G	G	G		130	130	125	125	115	110	B	B	B	B		B
	110											175											105	
3	B		B	B	B			G	G		G	G	G	G	G	G				B	B	B	B	B
		110				110	105			100							110	100	100					
4	B			B		B	B							G	G		E G 180				B	B	B	B
		110	105		105			115	105	110	125	110	120			150		100	100	100				
5	B	B	B	B	B		B	B	G	G		G	G		G				B	B	B	B	B	B
						110					120			115		110	110	110						
6			B	B		B	B	G	G		E G								B				B	
	105	110			105					115	190	110	165	145	100	105	105		105	135	135	125		120
7	B	B		B	B	B	B		G	E G				E G										
			110					110		200	160	105	165	180	150	165	125	120	120	100	120	115	110	105
8		B	B	B	B	B	B	B	G		G	G	G	G										B
	120									115					105	105	100	100	105	120	105	115	110	
9	B	B	B	B		B	B		G	G						G	G	B		B				
					110			110			130	115	115	120	120				105		120	115	110	115
10							B		G					G		G	G		B					
	110	110	110	105	105	105		110		120	115	115	115		150			130		110	110	110	105	110
11				B		B	B		G															B
	110	110	110		110			120		150	150	110	110	110	120	150	120	115	110	110	115	115	120	
12	B	B					B				G		G	G		G				B				
			105	105	105	110		115	110	110		120			110		110	110	115		100	105	100	105
13						B	B	B	G														B	B
	105	105	110	110	110					120	120	115	125	120	120	120	110	110	110	115	105	110		
14	B	B	B	B	B	B	B	G			G	G	G				G	B	B	B	B	B		B
									130	125				110	110	110							125	
15	B	B	B	B	B	B	B	B		G			E G				G							B
									120		150	145	170	155	125	120		120	110	110	110	105	100	
16	B	B	B	B	B	B	B		G				G											
								115		160	140	130		115	110	110	110	155	135	125	120	125	120	120
17						B	B		G								G	B	B					B
	105	105	120	110	110			110		150	140	110	115	120	120	100				115	110	125	120	
18	B	B	B	B	B	B	B		G						G	G	G	G						
								115		155	125	120	125	125					135	130	120	110	120	120
19	B	B		B	B		B	G										B	B	B				B
			115			110			140	140	135	125	110	115	120	110	115				120	110		
20	B	B	B						G				G										B	B
				110	105	110	110	105		120	115	120		110	110	110	105	100	110	100	100			
21	B			B	B		B	B	E G													B	B	B
		135	125			115			210	95	150	155	135	125	110	100	95	100	105	110	105			
22	B	B	B				B	B	G	G	G	G	G				G					B		
				100	100	105								115	110	115		110	115	105		110	105	110
23							B	G	G	G			E G		G	G					B	B	B	B
	115	105	110	100	105	105					170	110	180	150			120	115	115	115				
24	B		B		B	B	B	G	G	G				G										
		110		115							170	145	150		110	110	175	110	110	105	100	100	100	110
25		B	B		B		B	G	G					G										B
	105			115		110				120	120	120	120		110	110	105	105	105	110	120	110	115	
26	B	B	B	B	B			G	G	G				E G	G		G							
						110	110				180	155	110	190		150		105	105	105	110		B	B	B
27	B	B	B	B	B	B	B	G	G	G				G						B	B	B	B	B
											175	135	150		105	105	105	105	100					
28	B	B	B		B	B	B	B	G							G		G	B		B	B	B	B
				110						125	110	110	110	105	100		105			120				
29	B				B	B	B	G						G	G	G	G	G		B	B	B	B	B
		105	105	105					120	115	115	115	110						120					
30	B			B	B	B	B	G	G		G													B
		115	105							140		145	120	115	110	110	105	105	105	105	100	100	120	
31	B	B	B	B	B	B	B	G	G					G	G				B	B	B	B	B	B
										115	110	110	110			110	105	110						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	13	12	12	11	11	4	11	8	22	24	26	23	21	23	22	22	22	22	20	19	17	16	10
MED	110	110	110	108	105	110	110	110	118	120	133	118	120	118	110	110	110	110	110	110	110	110	110	112
U Q	112	110	112	110	110	110	110	115	135	140	165	135	150	138	120	120	115	115	115	118	120	115	120	120
L Q	105	105	105	105	105	105	108	110	108	115	120	110	110	115	110	110	105	105	105	105	105	108	105	110

IONOSPHERIC DATA STATION KOKUBUNJI

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

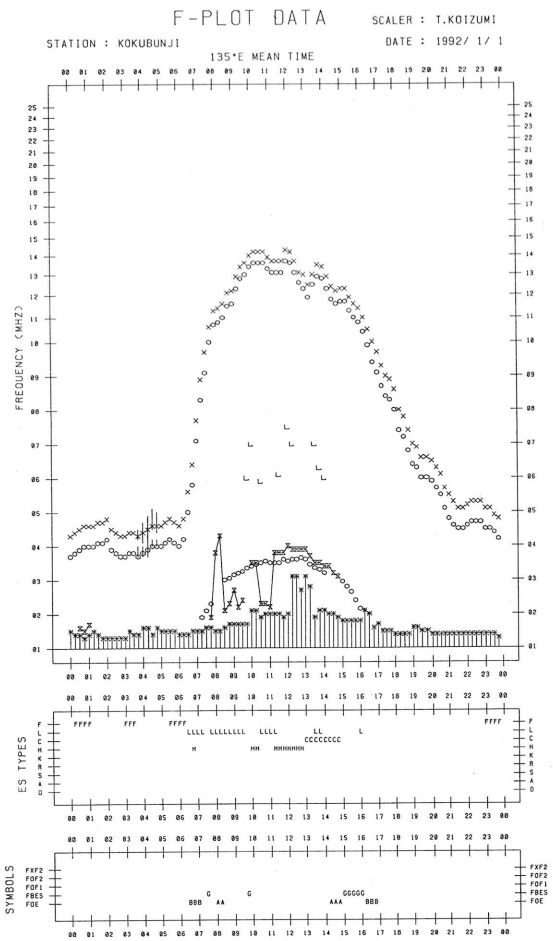
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHZ TO 25.0MHZ IN 24.0SEC IN MANUAL SCALING

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

JAN. 1992 TYPES OF ES COMMUNICATIONS RESEARCH LABORATORY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

KEY OF F-PLOT	
I	SPREAD
⬡	FOF2, FOF1, FOE
×	FXF2
✳	DOUBTFUL FOF2, FOF1, FOE
⧖	FBES
L	ESTIMATED FOF1
⫯, Y	FMIN
∧	GREATER THAN
∨	LESS THAN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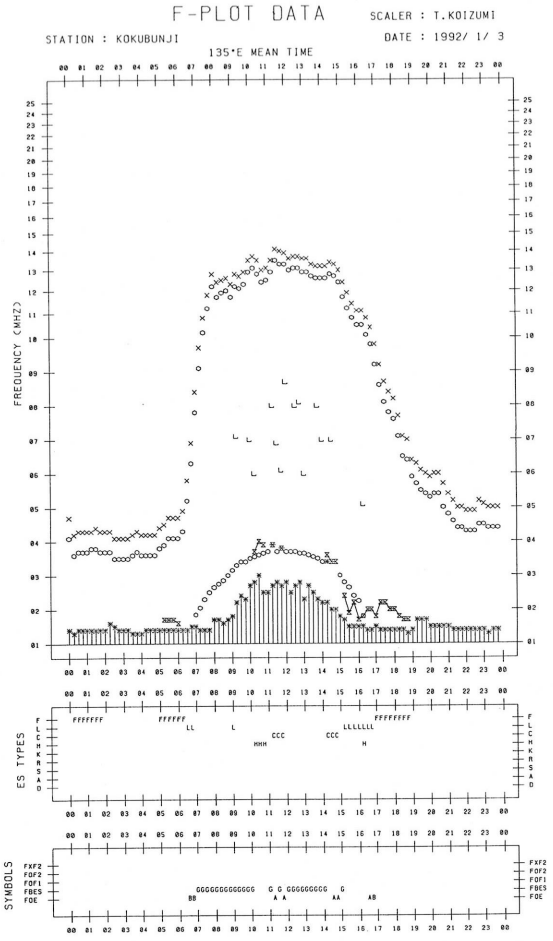
STATION : KOKUBUNJI
DATE : 1992/ 1/ 1
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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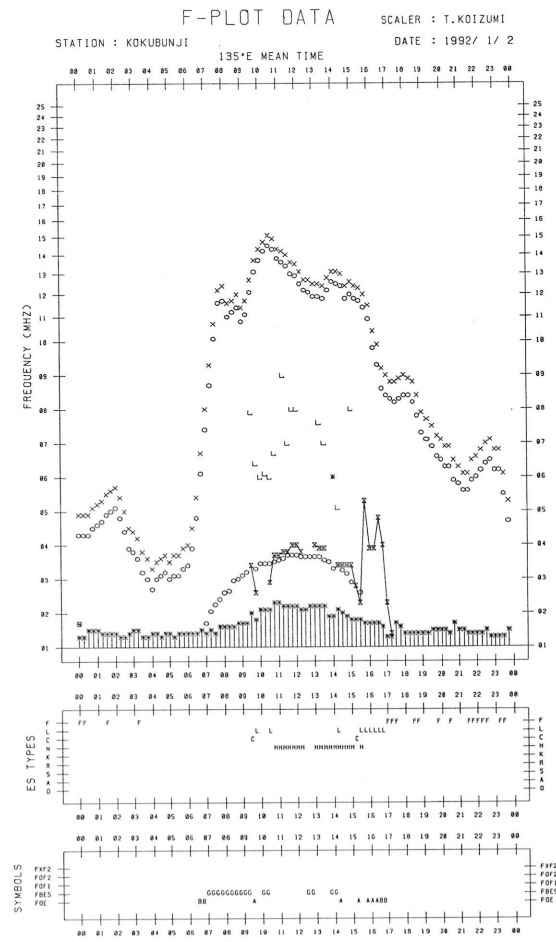
STATION : KOKUBUNJI
DATE : 1992/ 1/ 3
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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STATION : KOKUBUNJI
DATE : 1992/ 1/ 2
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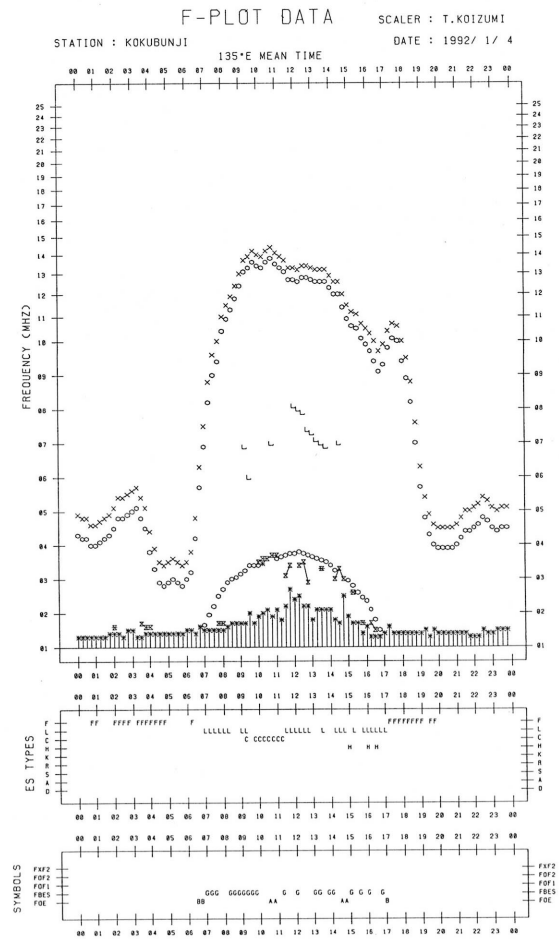
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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STATION : KOKUBUNJI
DATE : 1992/ 1/ 4
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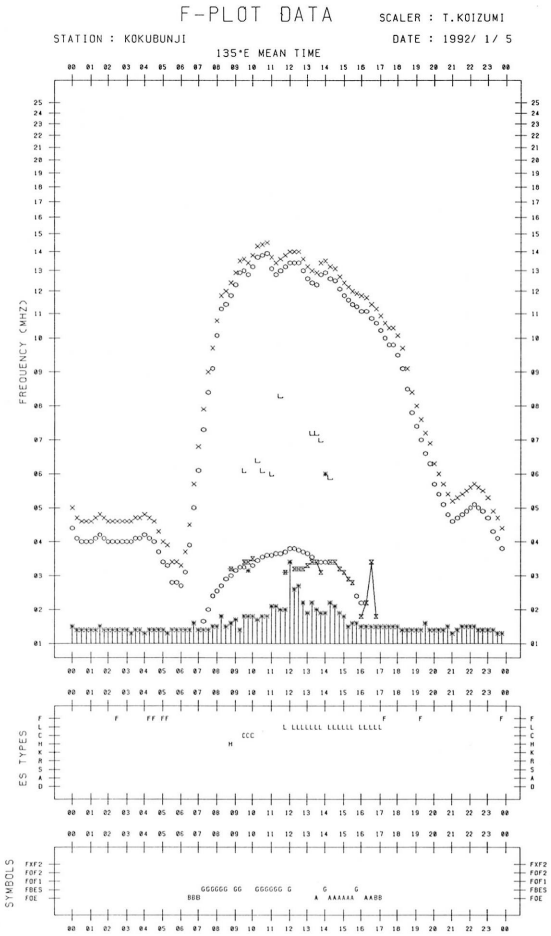
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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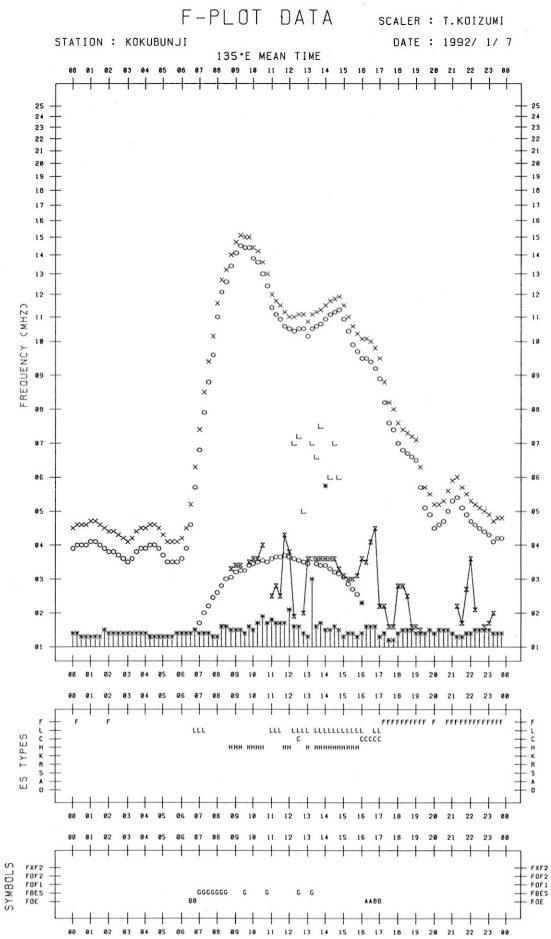
STATION : KOKUBUNJI
DATE : 1992/ 1/ 5
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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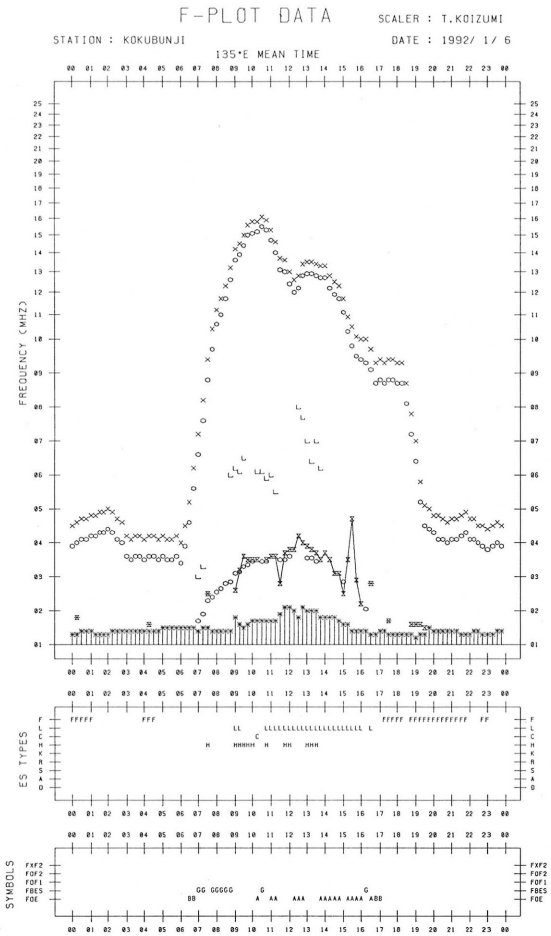
STATION : KOKUBUNJI
DATE : 1992/ 1/ 7
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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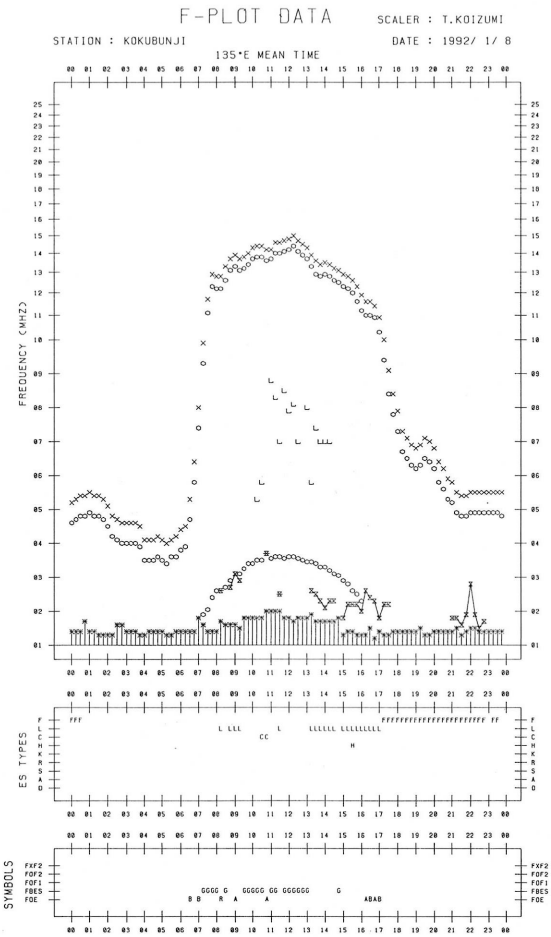
STATION : KOKUBUNJI
DATE : 1992/ 1/ 6
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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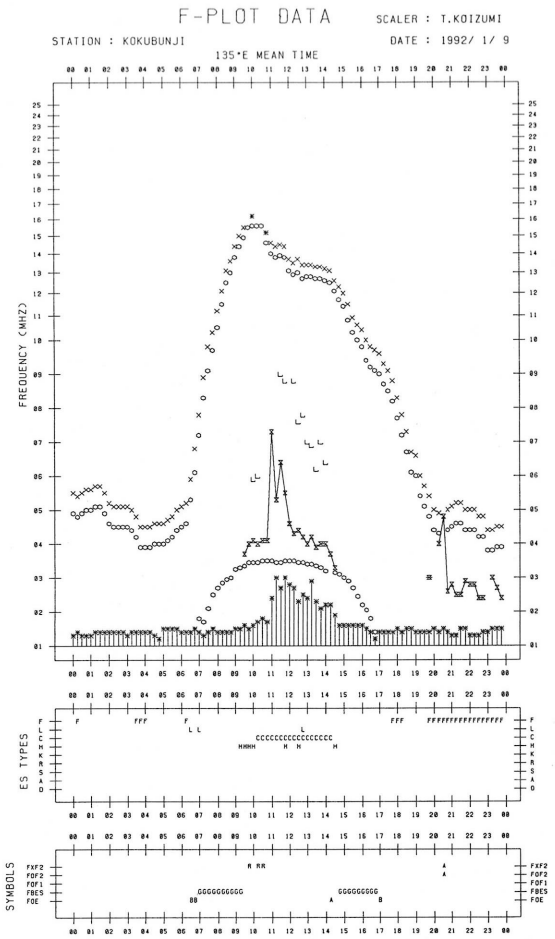
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/ 8
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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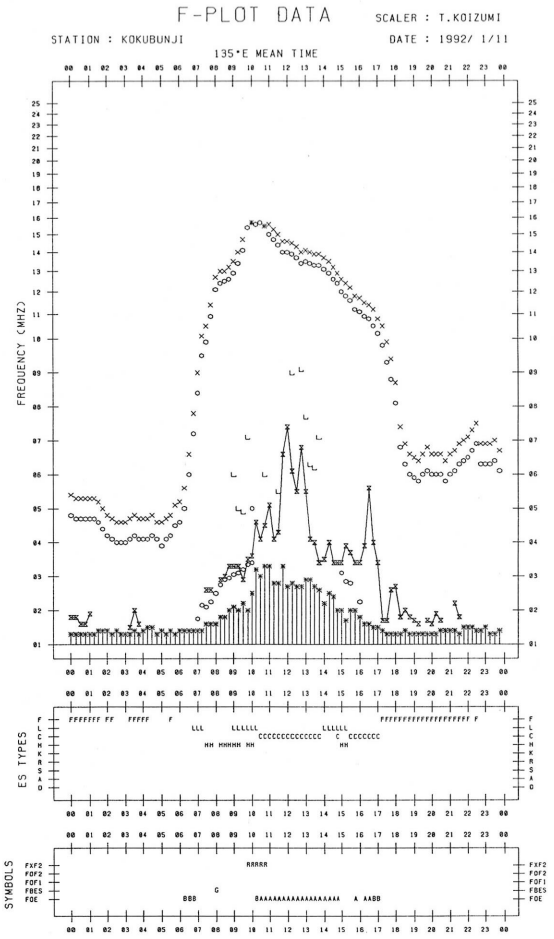
STATION : KOKUBUNJI
DATE : 1992/ 1/ 9
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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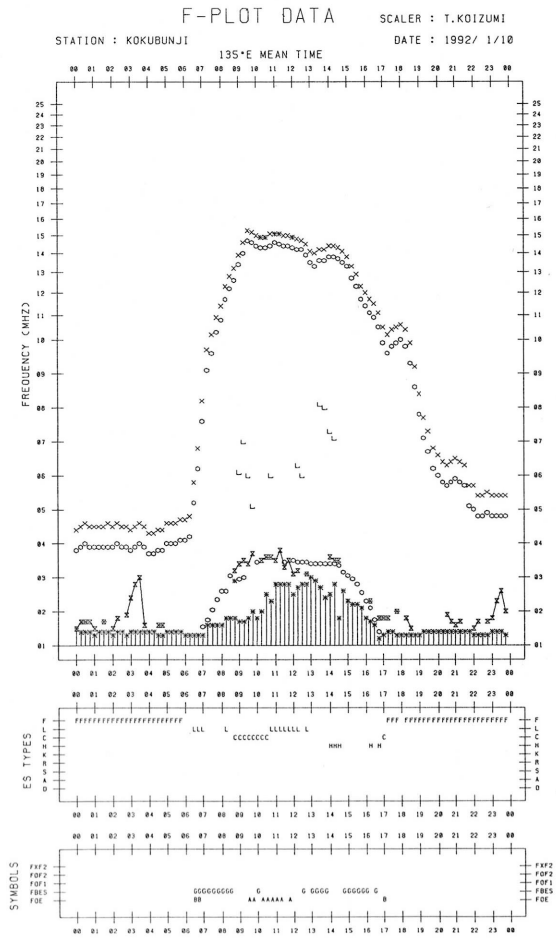
STATION : KOKUBUNJI
DATE : 1992/ 1/11
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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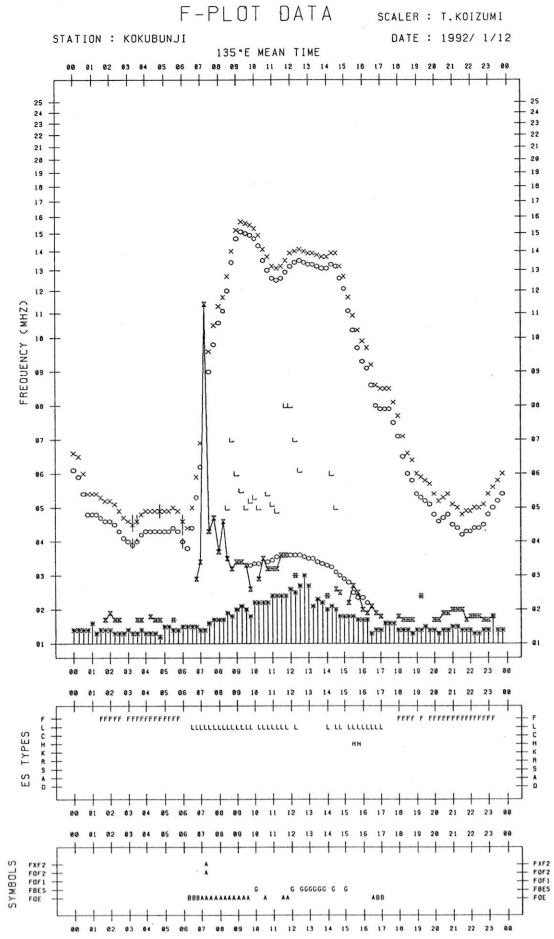
STATION : KOKUBUNJI
DATE : 1992/ 1/10
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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STATION : KOKUBUNJI
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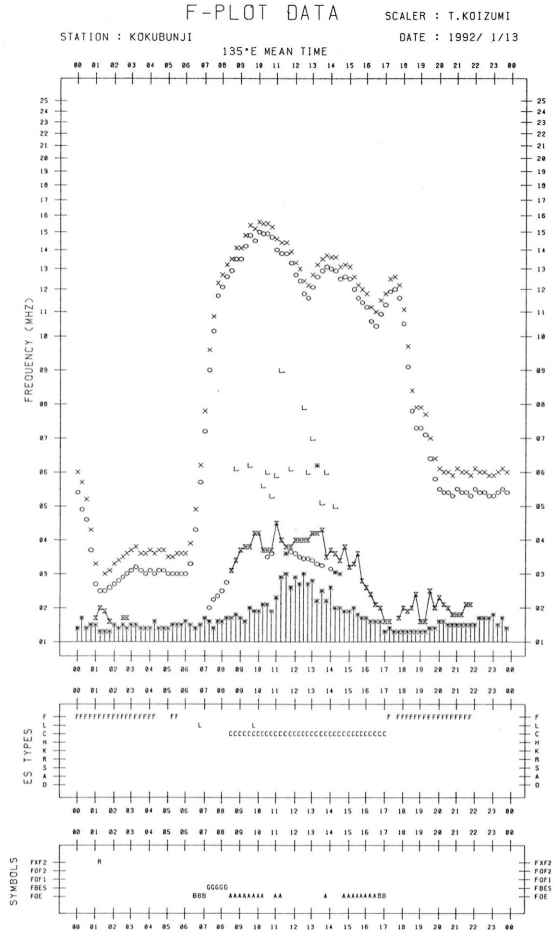
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE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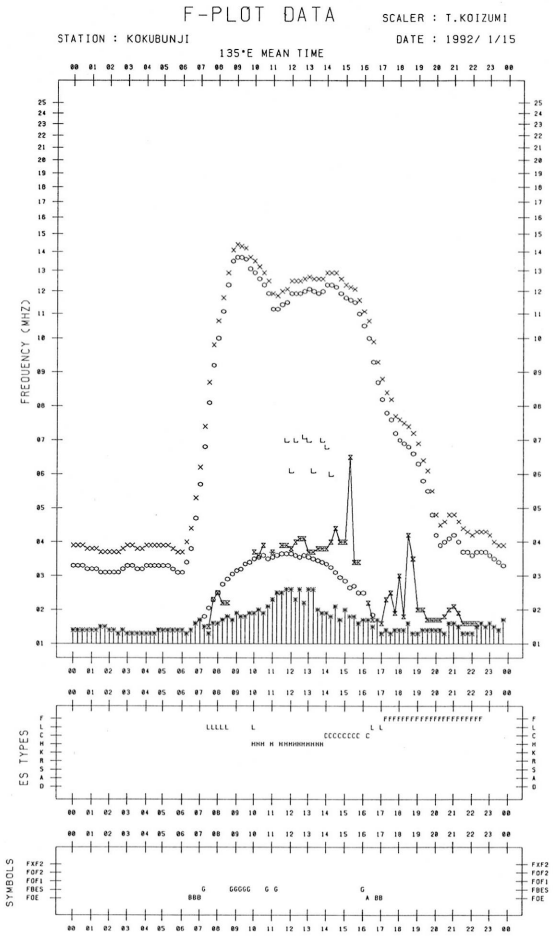
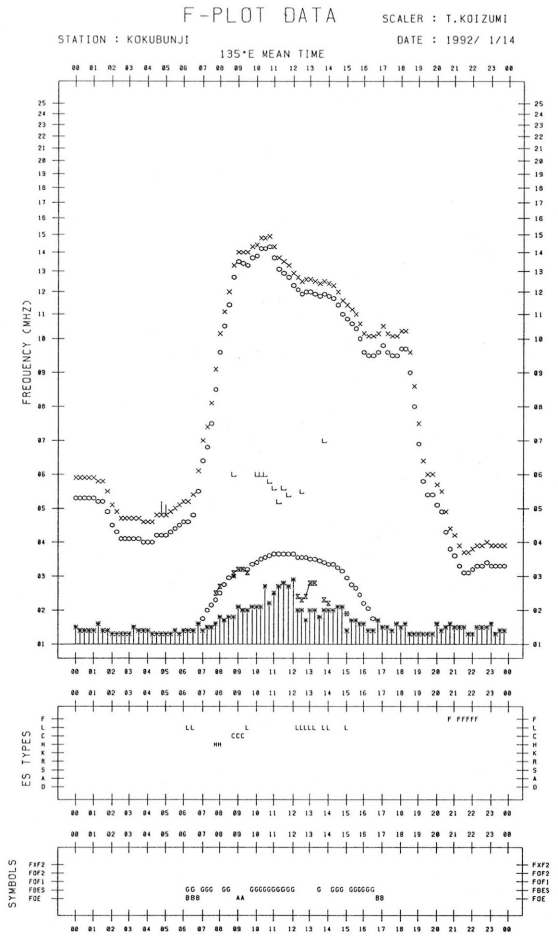
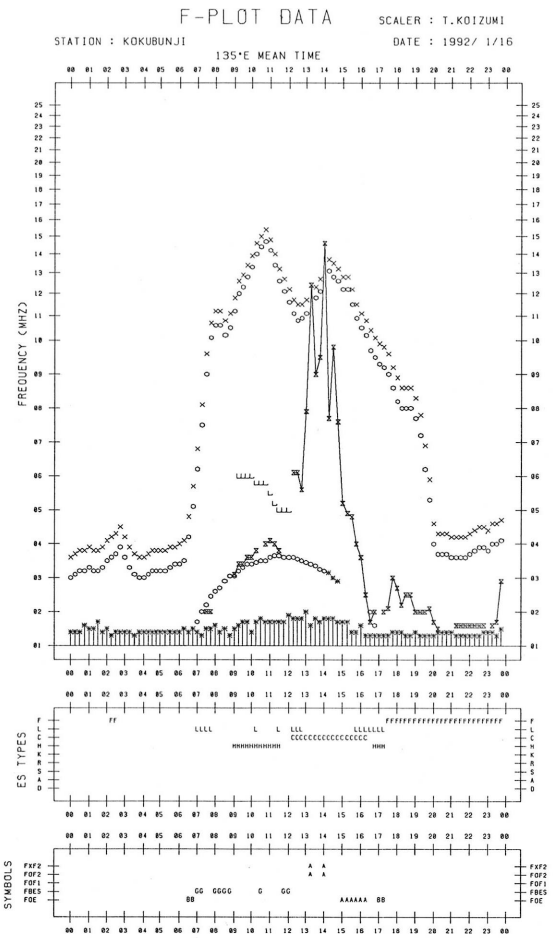
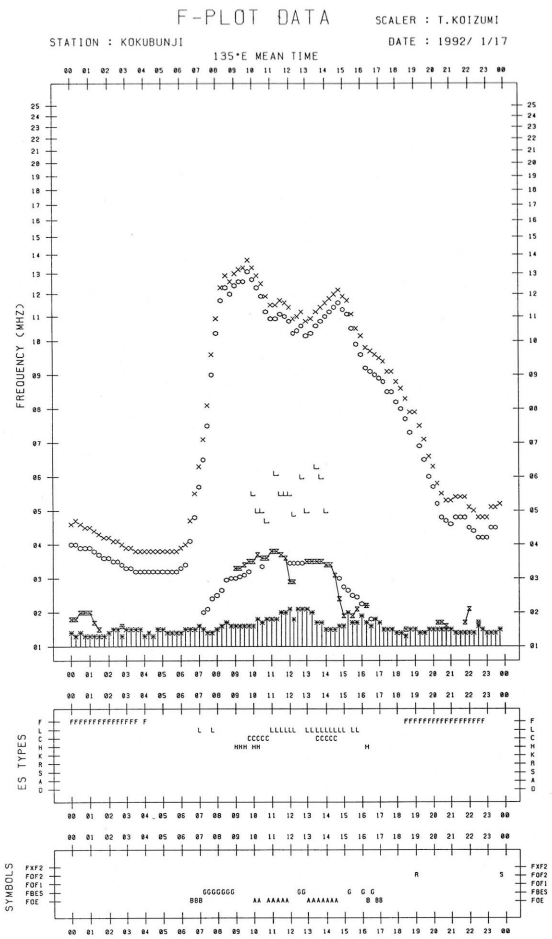
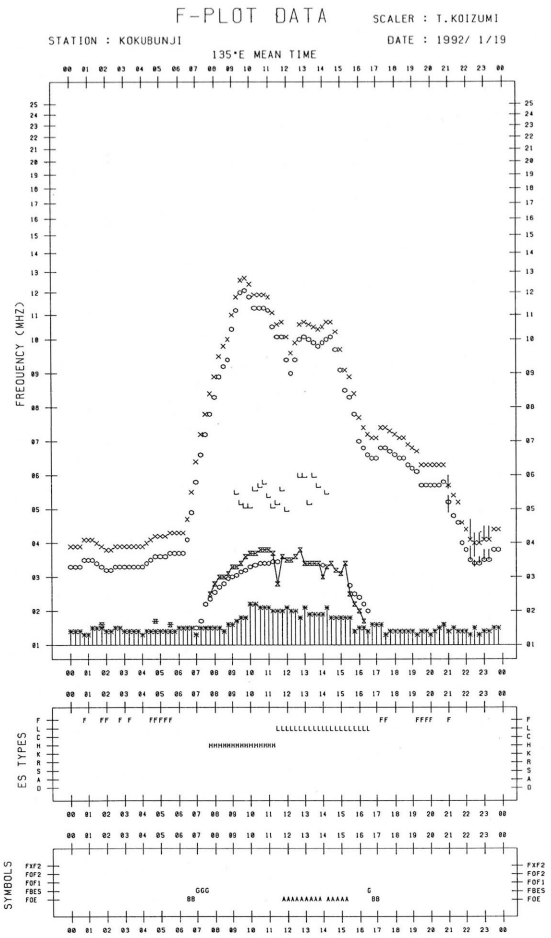
STATION : KOKUBUNJI
DATE : 1992/ 1/13
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

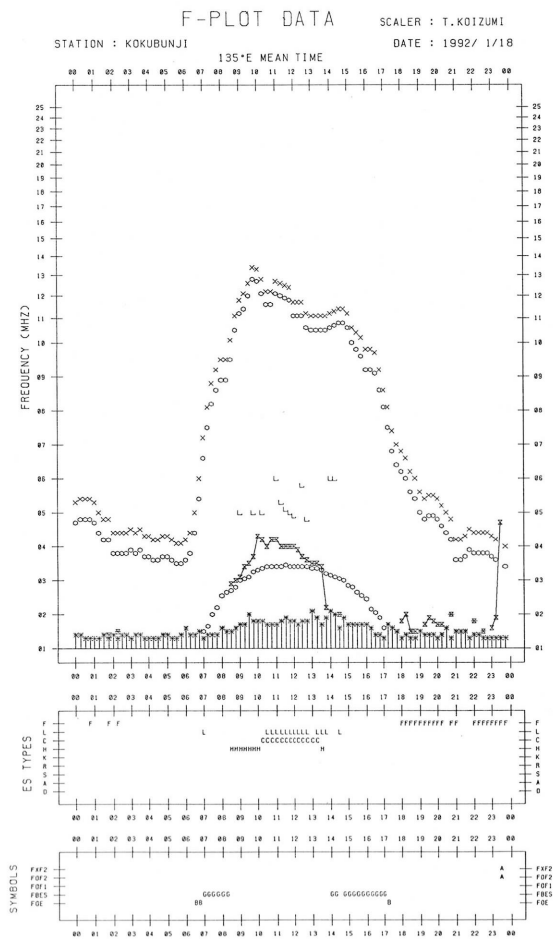

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/15
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

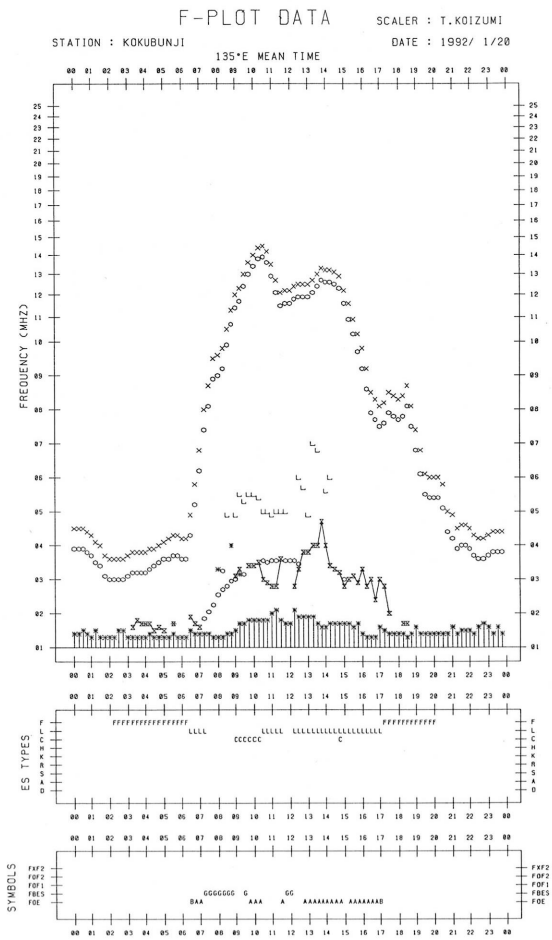

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/14
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

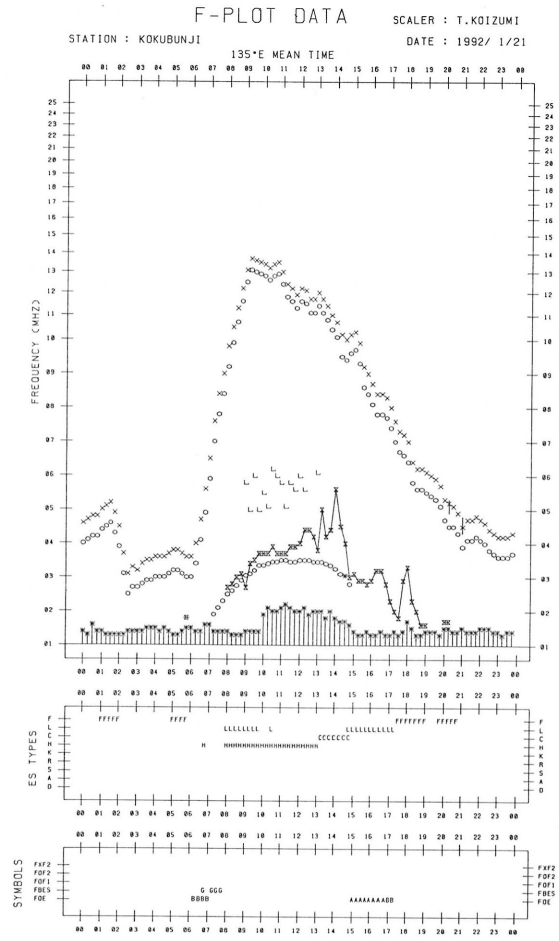

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/16
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

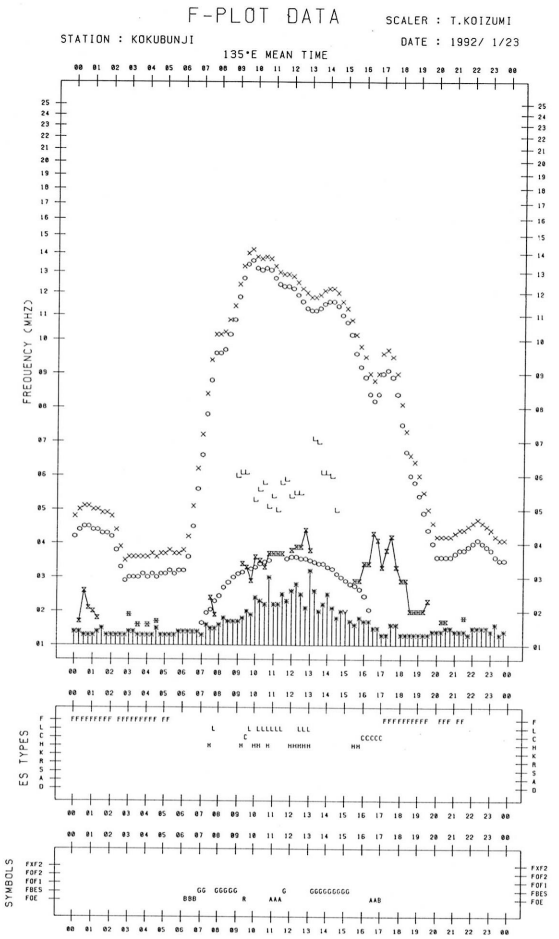

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/17
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

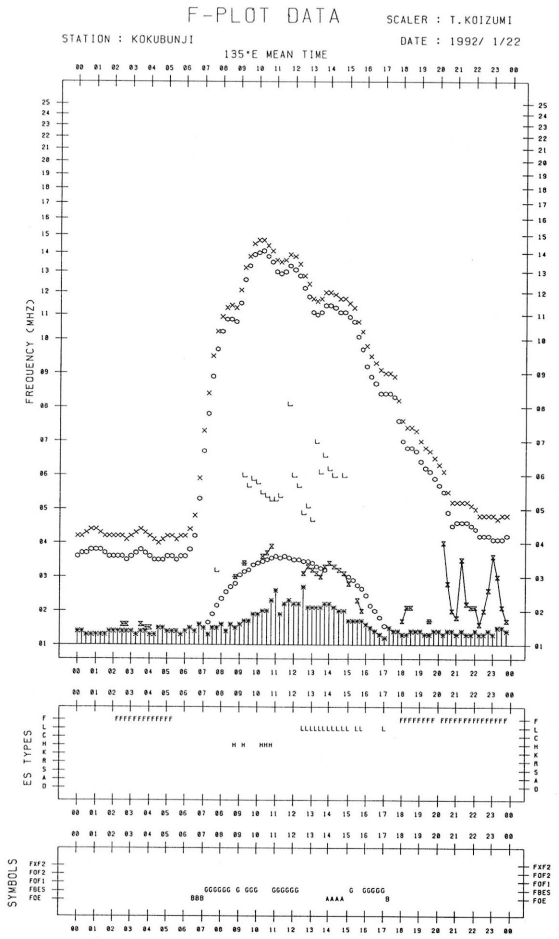

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/19
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

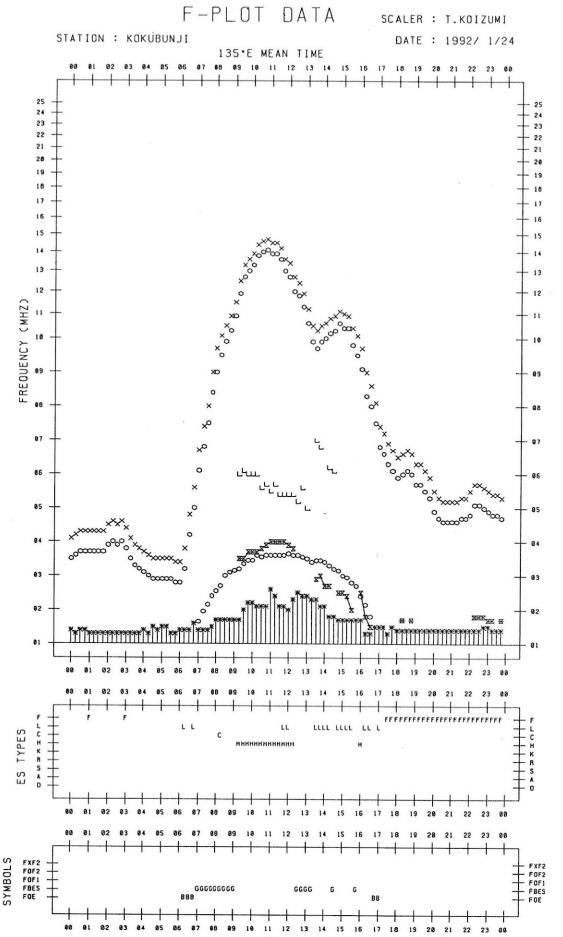

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/18
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

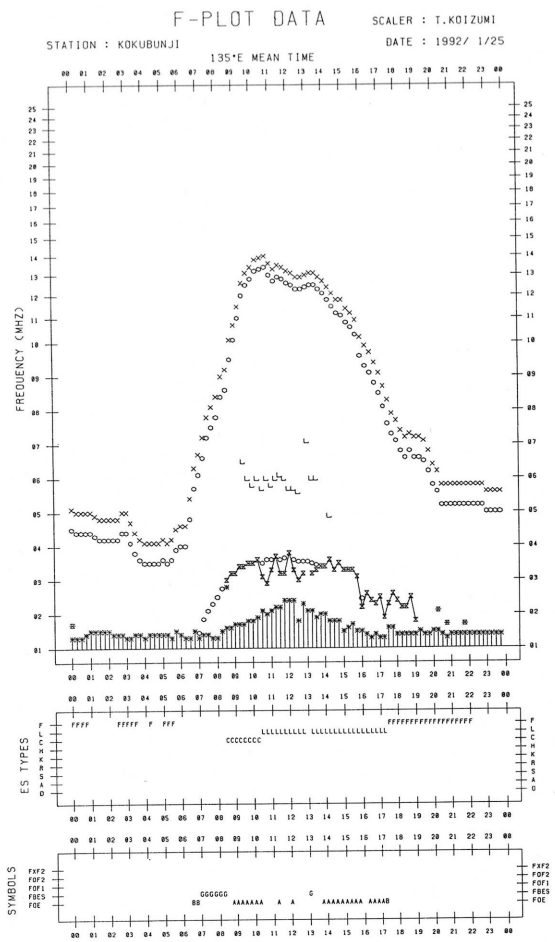

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/20
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

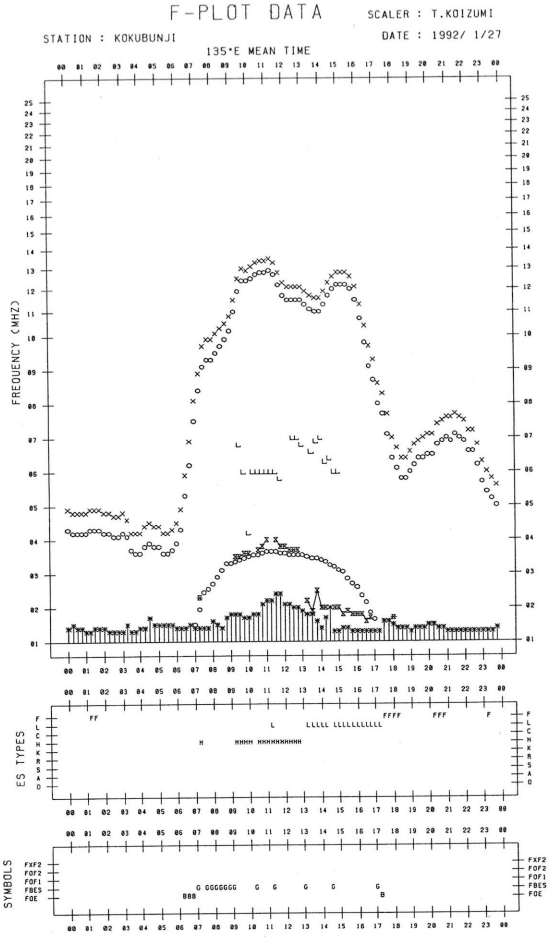

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/21
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

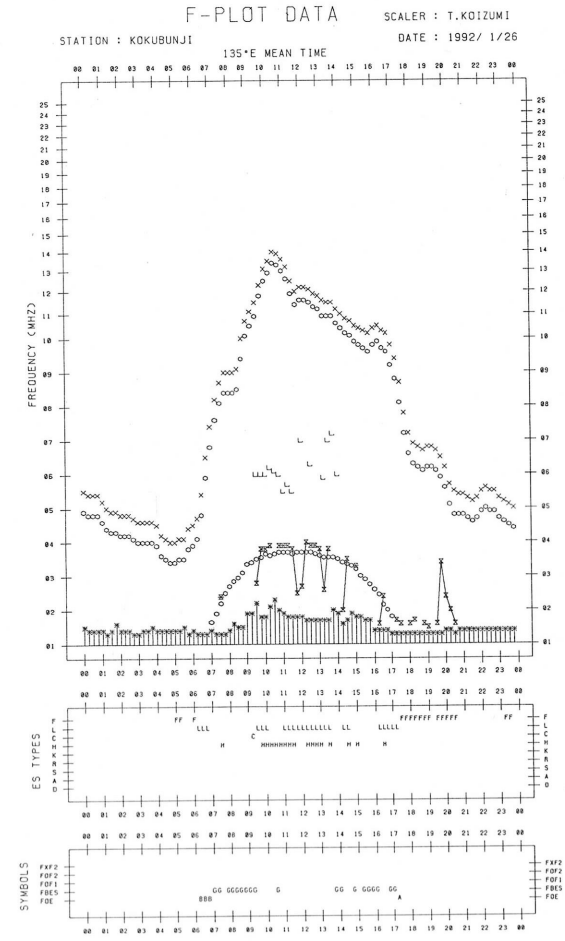

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/23
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

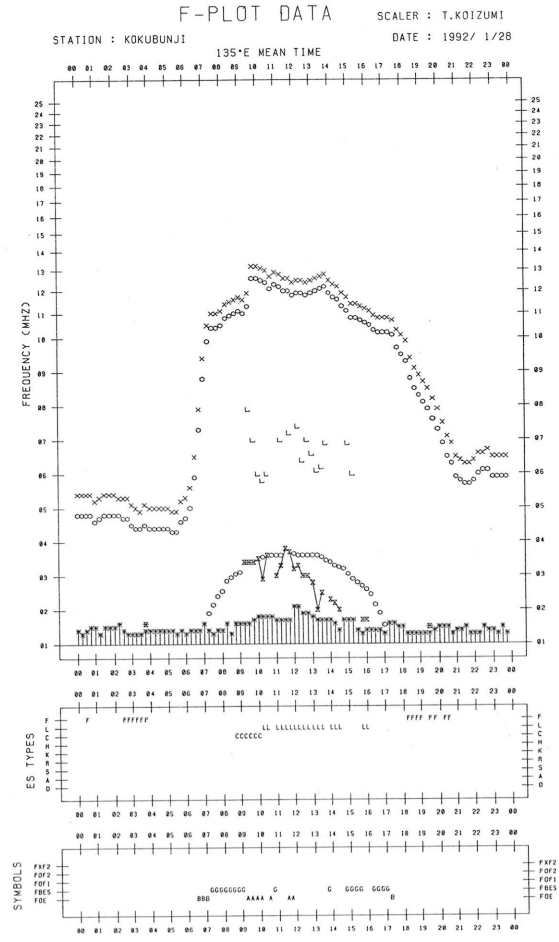

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/22
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

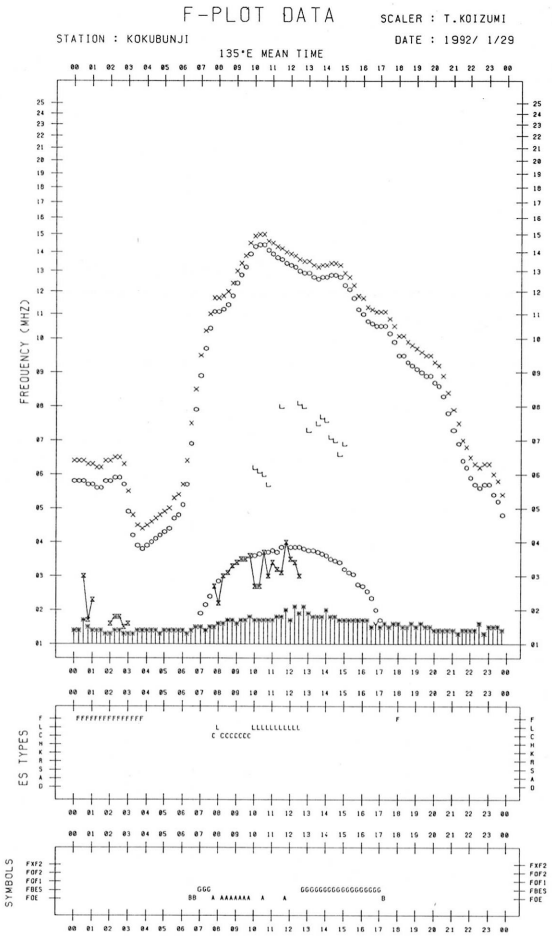

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/24
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE

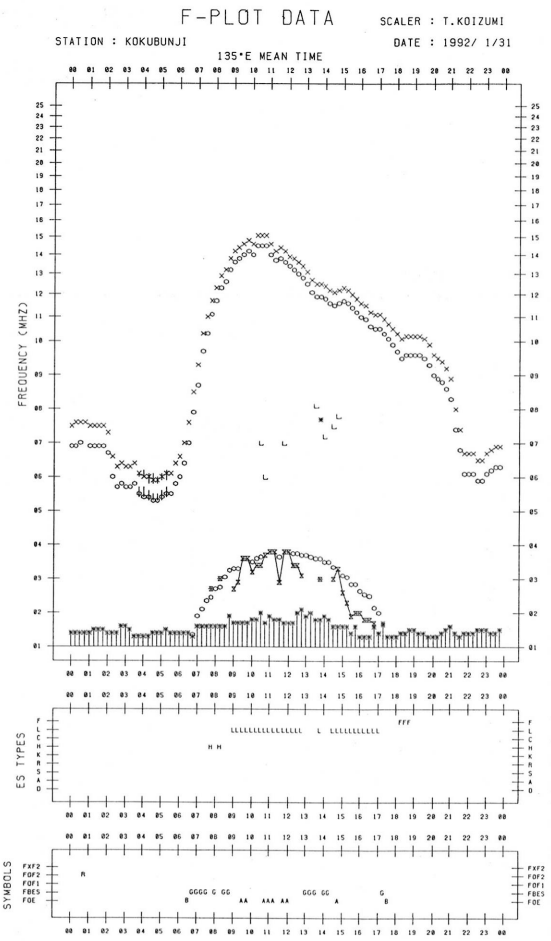

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/25
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS

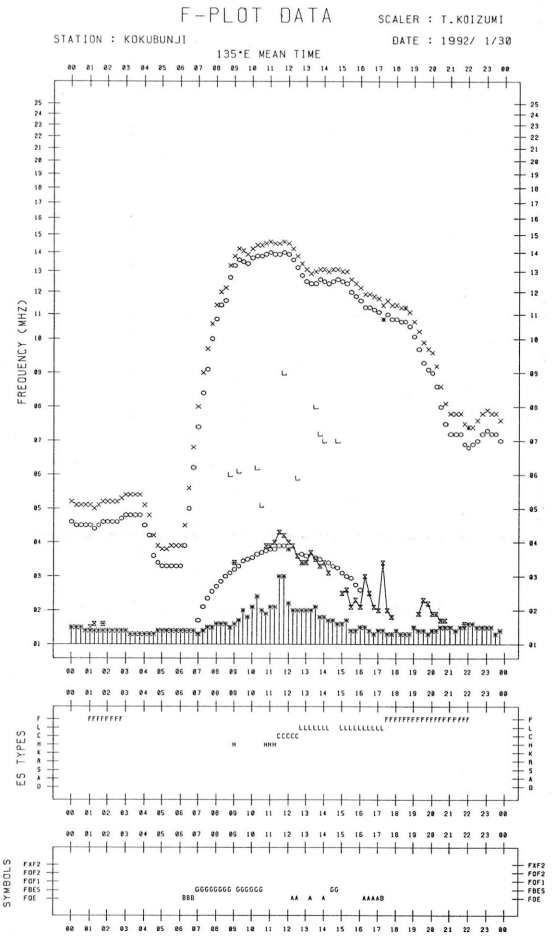

F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/27
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/26
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/28
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/29
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


F-PLOT DATA
SCALER : T.KOIZUMI
STATION : KOKUBUNJI
DATE : 1992/ 1/31
135°E MEAN TIME
FREQUENCY (MHZ)
ES TYPES
SYMBOLS
FXF2
FOF2
FOF1
FBES
FOE


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

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

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso

January 1992

Single-frequency observations

Normal observing period: 2150 - 0750 U.T. (sunrise to sunset)

JAN. 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	100	42 SER	0342.0	-	19	1000D	-	-
	200	46 C	0343.7	0344.8	7.0	150	40	0
	100	42 SER	0435.8	-	13	1000D	-	-
	100	44 NS	2155E	0049	550D	15	5	0
	200	44 NS	2155E	0110	550D	80	18	MR
2	100	46 C	0504.8	-	2.0	1000D	-	-
	200	46 C	0505.3	0505.3	1.3	700	80	WR
	100	46 C	0651.1	-	9	1000D	-	-
	200	42 SER	0651.4	0655.3	4.5	1700	-	0
	200	44 NS	2155E	2313	550D	40	20	WL
3	100	44 NS	2155E	2233	360D	70	40	MR
	200	44 NS	2155E	2241	360D	60	30	MR
4	200	46 C	0605.2	0605.8	2.5	100	25	WR
	200	44 NS	2155E	2330	570D	60	30	ML
5	200	44 NS	2155E	0250	570D	100	60	SL
	100	44 NS	2155E	0530	570D	200	30	ML
6	100	44 NS	2155E	2215	570D	800	400	SL
	200	44 NS	2155E	2228	570D	250	80	SL
7	200	44 NS	2155E	2233	570D	100	40	SL
	100	44 NS	2155E	0029	570D	270	130	ML
8	100	44 NS	2155E	0100	570D	130	5	ML
14	200	42 SER	0553.5	0555.6	3.0	500	-	0
22	100	46 C	2308.1	2312.0	5.3	23	8	0
	200	42 SER	2310.3	2312.0	1.6	160	-	0
24	200	44 NS	2150E	0509	590D	40	20	WR
25	200	44 NS	2150E	0452	590D	60	30	WR
27	200	43 NS	0229	0606	320D	80	20	WR
	200	44 NS	2150E	0433	590D	200	50	ML
28	200	44 NS	2150E	2315	590D	100	30	WR
29	200	46 C	0158.8	0201.0	3.6	230	60	MR
	100	46 C	0159.1	0201.0	4.6	640	150	WR
	200	44 NS	2150E	0236	590D	200	50	MR
	100	44 NS	2150E	0248	590D	350	70	MR
30	200	44 NS	2150E	2230	590D	5000	900	SL
	100	44 NS	2150E	-	590D	1000D	750U	SL
31	200	48 C	0004.3	0005.3	2.7	19000	6000	WR
	200	44 NS	2150E	2216	590D	700	100	SL
	100	44 NS	2150E	0505	590D	350	50	SL

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

C. RADIO PROPAGATION

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

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

C. RADIO PROPAGATION

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

JAN 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	5	6	12	4	21	C	C	28	24	9	4	1	-11	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-3	14	13	6
2	8	10	13	15	18	24	26	11	2	2	0	-2	1	24	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	13	-2	9	7
3	6	10	13	20	24	23	27	27	29	7	9	19	8	-2	-2	-4	-16	0	21	ES -25	5	5	-1	7
4	9	6	8	18	23	26	25	17	17	8	-3	-17	-3	-5	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	5	15	15	12
5	12	13	8	20	28	25	27	30	19	19	5	-2	2	-1	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	16	18	11	14
6	11	12	17	20	24	27	27	26	18	18	2	-5	-10	ES -25	ES -25	ES -25	ES -25	ES -25	ES -4	ES -4	9	11	10	3
7	5	5	12	16	18	28	33	28	18	4	-2	8	7	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	10	15	19	15
8	4	9	17	24	24	25	31	29	21	18	13	16	19	15	-1	-1	-1	-1	ES -25	ES -25	9	16	16	8
9	3	5	15	19	24	27	28	29	21	16	8	1	2	6	ES -5	ES -5	ES -5	ES -5	ES -5	ES -5	5	10	2	-2
10	3	3	10	19	17	27	29	28	20	32	17	26	13	9	26	-4	-10	ES -25	ES -25	ES -25	11	11	6	4
11	5	4	7	14	19	25	28	29	23	19	19	24	22	16	ES -4	ES -4	ES -4	ES -4	ES -4	ES -4	15	16	9	7
12	2	4	8	13	16	29	27	21	9	-1	8	1	ES -25	1	8	ES 1	ES 1	ES 1	ES 1	ES 1	4	13	10	1
13	2	2	11	16	24	25	28	29	24	24	20	13	11	13	20	5	16	-2	ES -25	ES -25	19	12	11	7
14	7	11	15	19	24	25	28	20	13	6	3	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	3	15	10	-2
15	12	10	19	21	25	26	31	24	23	18	9	9	-1	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	20	14	17	11
16	14	15	16	23	26	29	21	28	24	19	9	-2	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	14	15	18	18
17	19	15	18	20	25	29	26	24	21	14	24	23	18	ES -4	ES -4	ES -4	ES -4	ES -4	ES -4	ES -4	15	15	16	15
18	10	17	18	21	24	27	22	31	19	3	3	3	6	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	19	21	16	20
19	13	13	19	20	24	27	35	27	13	-1	18	1	-10	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	19	20	18	15
20	14	16	20	22	30	28	39	29	13	8	10	16	4	3	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	15	20	20	15
21	10	14	18	19	22	28	20	19	13	-2	-2	-5	ES -5	ES -5	ES -5	ES -5	ES -5	ES -5	ES -5	ES -5	13	20	15	10
22	10	9	16	19	20	27	28	25	13	23	3	0	5	13	-5	ES -26	ES -26	ES -26	ES -26	ES -26	4	13	9	12
23	13	15	17	19	20	25	24	23	21	14	1	-2	0	-5	ES -11	ES -11	ES -11	ES -11	ES -11	ES -11	14	23	15	8
24	10	9	12	16	21	19	9	25	19	3	-2	-2	0	-5	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	13	17	12	13
25	10	8	15	20	24	29	29	29	19	25	6	14	3	0	ES -26	ES -17	-5	ES -3	ES -11	ES -5	12	20	13	10
26	8	14	12	18	25	18	25	25	25	25	14	12	1	-3	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	10	17	11	1
27	8	9	11	18	25	29	29	33	20	-3	12	27	19	-3	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	19	14	17	10
28	10	9	13	15	20	26	25	31	29	32	13	28	21	18	15	ES -26	ES -26	ES -26	ES -26	ES -26	12	18	10	6
29	6	5	12	17	21	25	29	24	33	19	20	23	19	ES -5	ES -5	ES -5	ES -5	ES -5	ES -1	ES 0	10	8	8	8
30	5	10	10	25	23	28	30	30	33	32	8	31	19	10	11	ES -5	ES -17	ES -26	ES -26	ES -26	10	18	10	2
31	5	12	13	20	28	26	36	34	32	31	31	31	28	-2	-3	-3	-11	ES -26	ES -26	ES -26	12	18	10	12
CNT	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	8	10	13	19	24	26	28	28	20	16	8	8	3	-3	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	12	15	11	8
UD	14	15	19	23	28	29	35	31	32	32	20	28	21	16	15	ES -1	ES -1	ES -1	ES -1	ES -4	19	20	18	15
LD	3	4	8	14	18	23	21	19	13	-1	-2	-5	ES -25	ES -25	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	4	8	6	1

C. Radio Propagation

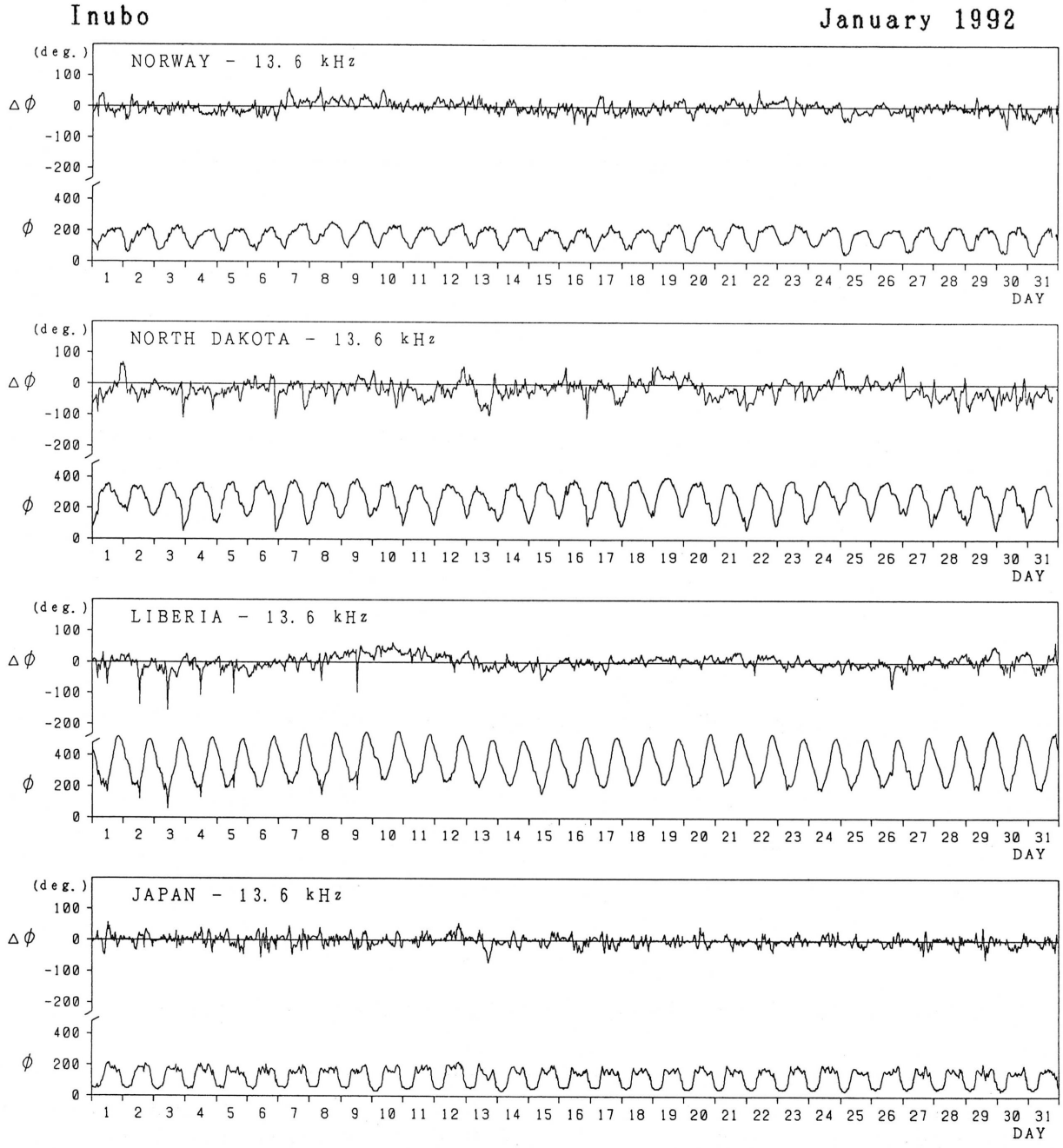
C2. Radio Propagation Quality Figures at Hiraiso

Hiraiso — Time in U.T.

Jan. 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	3o	2 - - 3	4 3 2 4	N N N N	none		
2	4o	4 5 - 3	4 3 4 4	N N N N			
3	4-	3 - - 3	4 4 5 3	N N N N			
4	4-	4 - - 4	4 3 3 4	N N N N			
5	4o	4 - - 4	4 4 4 4	N N N N			
6	4-	4 - - 4	4 4 2 4	N N N N			
7	4-	4 - - 4	4 4 3 4	N N N N			
8	4o	4 5 - 3	4 4 5 4	N N N N			
9	4-	3 - - 4	4 4 4 3	N N N N			
10	4o	4 4 - 3	4 5 5 4	N N N N			
11	4o	4 4 - 4	3 4 5 4	N N N N			
12	3+	5 - - 4	3 3 3 3	N N N N			
13	4+	4 - - 4	4 4 5 4	N N N N			
14	4-	4 5 - 5	4 3 1 4	N N N N			
15	4+	4 - - 5	4 4 3 5	N N N N			
16	3+	3 - - 4	4 3 1 5	N N N N			
17	4o	4 - - 4	4 4 4 4	N N N N			
18	4-	4 - - 4	4 3 3 5	N N N N			
19	4o	4 - - 5	4 4 2 5	N N N N			
20	4+	5 - - 4	5 4 4 4	N N N N			
21	4-	4 4 - 4	4 3 3 4	N N N N			
22	4o	3 - - 4	4 4 5 4	N N N N			
23	4-	3 - - 4	4 4 4 4	N N N N			
24	4-	3 - - 4	4 3 4 4	N N N N			
25	4+	4 5 5 4	4 4 4 4	N N N N			
26	4o	4 - - 4	4 4 4 4	N N N N			
27	4+	4 5 5 4	4 4 4 4	N N N N			
28	4+	4 5 5 2	4 5 5 4	N N N N			
29	4-	3 - - 3	4 5 4 4	N N N N			
30	4+	3 5 5 4	4 5 5 4	N N N N			
31	4+	4 - 5 3	4 5 5 4	N N N N			

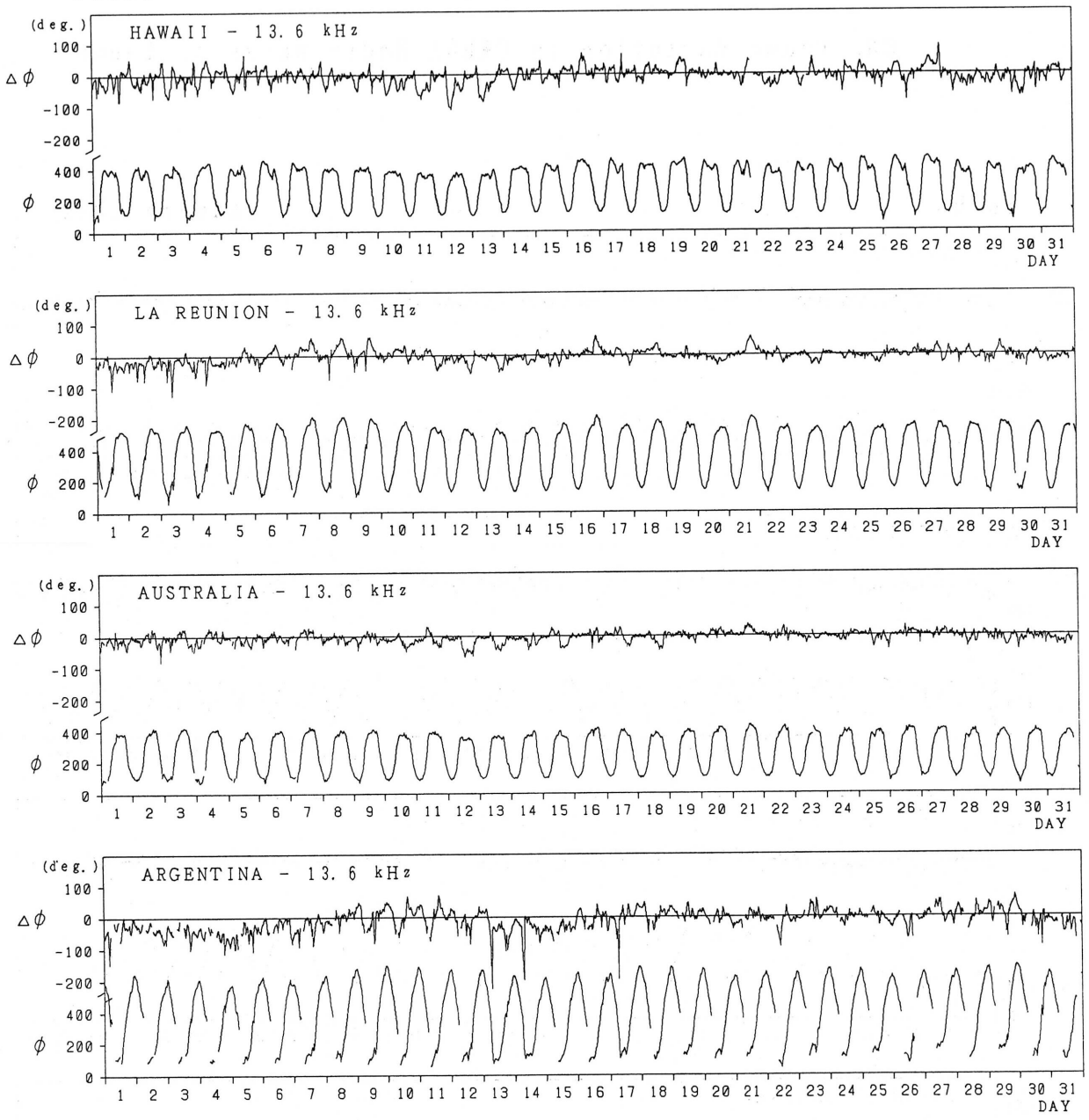
C. Radio Propagation

C3. Phase Variation in OMEGA Radio Waves at Inubo



Inubo

January 1992



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

Start (U.T.)	End (U.T.)	Max. (U.T.)	Max. Phase Deviation (negative value, deg.)
Jan.04/0510	Jan.06/0250	Jan.04/1823	74.5

C. Radio Propagation

C4. Sudden Ionospheric Disturbance

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

Hiraiso

Time in U.T.

Jan. 1992	S W F								Correspondence	
	Drop-out Intensities(dB)					Start	Dur.	Type	Imp.	Solar * Flare	Solar Burst
	CO	HA	AUS	MOS	BBC						
1			10			0013	15	1	1-	x	x
1			20			0307	15	2	2-	x	x
2			14			2137	32	2	1	x	
3					16	0943	40	3	1	x	
3			17			2220	27	3	1+	x	
4			14			0226	32	3	1	x	
4			15			0258	21	2	1	x	x
4			23			0526	40	2	2-	x	x
5			16			0237	31	2	1+	x	x
6			8			0344	15	2	1-	x	
6			7			0403	25	1	1-	x	
7			20			0403	19	2	2-	x	x
8			11			0840	15	2	1-	x	
9			11			0346	xx	2	1-	x	
30	x	20	21	x		0225	25	2	2-	x	x
30			10			2334	24	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

Jan. 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	5		24	23	53		0011E	0117D	0020
1				6	8		0117E	0143	0120
1	23	30	111	82	60	26	0305	0329D	0320
1	35	46	170	128	94	35	0329E	0344D	0334
1	60	70	243	177	136	60	0344E	0528	0351
1		37	49				0903	1014	0917
1		124	86				1125	1309	1139
1				16	57	13	2017	2031D	2025
1				44	90	30	2031E	2118	2038
2				4			0224	0238	0228
2				5			0306	0322	0309
2			22	17			0404	0442	0419
2			52				0655	0705D	0701
2			104	46*			0705E	0804	0713
2		22	12				1015	1055	1024
2		99	57				1218	1327	1228
2		20					1430	1509	1441
2	21	10					1644	1709	1658
2				34	71		2102	2136D	2113
2				62	83	22	2136E	2234	2150

Inubo

Jan. 1992	S P A								
	Phase Advance (degrees)						Time (U.T.)		
Date	Ω/N	Ω/L	Ω/LR	Ω/AU	Ω/H	Ω/ND	Start	End	Maximum
3				13	11	13	0100	0124	0105
3			10	12	8		0137	0203D	0147
3				6	3		0203E	0227	0209
3			8	5			0424	0453	0428
3			64	41	23		0455	0545D	0518
3			86	49			0545E	0655	0559
3				21			0715	0742	0718
3			10				0833	0852	0839
3		32	18				0905	0924D	0917
3		146	153				0919E	1137	0943
3		15					1715	1736	1721
3				28	56		2129	2209D	2142
3				71	73	28	2209E	2307D	2231
3			13	45	38		2309	0003	2320
4				22*	23*		0013E	0109	0027
4				15	6		0147	0225D	0154
4	29		77	71	49		0226	0302D	0244
4	24	28	95	80	58	23	0302E	0415	0311
4	16	18	39	31	27		0422	0506	0429
4			17				0809	0838	0814
4		80	73				1112	1313	1140
4		18					1346	1406	1350
4					40		1831	1923	1848
4				15	12		2357	0031	0002
5	32	40	149	117	99	48	0242	0428	0259
5	23		132	87	28	16	0456	0721	0523
5		25	57	19			0735	0812	0745
5		23	15				0954	1019	1002
5		16	6				1030	1055	1036
5		94	27				1315	1427	1330
5		32					1654	1751	1706
5					51		1954	2038	2004
5				14	14		2236	2307	2246
6	17	26	94*	67	41*		0343	0512	0411
6			8				0630	0656	0641
6				34	28		2300	0015	2316
7	32	56	174	126	81	32	0402	0452D	0416
7	19		55	34			0452E	0638	0501
7		18					1345	1417	1356
7		43					1451	1600	1504
7					43		2022	2053	2030
8				14	12		0023	0038D	0031
8				22	18	11	0038E	0150	0051
8			24	23	14	10	0210	0244	0218
8			9	8	7		0255	0316	0259
8			9	6			0422	0451	0426
8			46	24			0532	0640	0540
8		62	44				0814	0839D	0829
8		104	94				0839E	1052	0857
8			17				1001E	1028	1006
8		25	13				1113	1200	1123
8		24	7				1300	1331	1307
9			13	8			0312	0336	0318
9			56	36			0349	0512D	0429
9			13	7			0512E	0555	0521
9			52	22			0604	0649	0619
9		10	6				0945	1006	0951
9		135	66				1241	1433	1252
10			20	16	5		0309	0350	0317
11			7	3			0423	0459	0429
11			9				0643	0709	0650
12			10				0822	0856	0829
12		29	14				1149	1229	1201
12		36					1455	1536	1503

Inubo

Jan. 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
12		14					1553	1609	1556
13		18					1728	1805	1740
13					30		1901	1937	1914
13					6		2308	2350	2320
14			8	6			0352	0427	0404
14			19	6			0729	0807	0736
14		14					1634	1656	1643
14					35		1921	2005	1935
15		31	33				0858	1012	0912
15					27		1855	1931	1905
16		17					1317	1342	1328
16		18					1511	1537	1519
17			8	5			0426	0452	0435
17			10				0643	0714	0652
17			11				0845	0926	0857
18				12	13	12	0023	0112	0034
18				10	12		2201	2216D	2208
18				16	17		2216E	2244	2223
19			11	6			0656	0722	0701
20			8				0620	0649	0625
20			14				0816	0903	0827
21			7	7			0434	0500	0443
22			30	17			0552	0635	0558
22		19	8				0956	1032	1004
25				11	8		0104	0138	0111
25		36	32				0823	0855	0838
25		24					1327	1414	1339
25	17				16		2159	2228	2203
25				32	44		2211E	2255D	2223
25				36	39		2255E	2344D	2307
25	13		37	82	63	34	2345E	0150	0006
26			8	8	5		0227	0255	0237
26		21					1432	1524D	1446
26		131					1524E	1710	1537
26					19		2149	2223	2201
26			24	55	54	24	2331	0041	2347
27			15	10	7		0138	0214	0143
27		18	19				0843	0922	0849
28			15	15	13	18	0139	0218	0154
28		25*	37*				0741	0840	0749
28				13	15	23	2302	2349	2313
29					5		0116	0139	0121
29					4		0200	0220	0206
29				7	5		0227	0250	0233
29			27	24	18	21	0307	0416	0319
29			11	12			0552	0610D	0602
29			61	32			0609E	0709	0617
29			23				0737	0813	0745
29		45	33				0956	1114	1017
29		34					1439	1525	1458
29		20					1539	1604	1547
29					10		2232	2242	2237
30				5			0122	0139	0131
30	45	56	153	117	94		0224	0405	0240
30		16	21	11			0410	0507	0426
30			40*	15			0603	0726	0612
30		23	12				0807	0838	0818
30		—	150				0934	1134	0942
30		35	6				1209	1252	1219
30		51					1356	1457	1404
30		22					1704	1750	1715
30					62		1935	2037	1954
30		18	23	60*	55*	28	2320	0034D	2346
31				10	17		0035E	0114	0040
31		31					1453	1540	1507

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