

ION. ANT.—62

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

January 1995—December 1995

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COMMUNICATIONS RESEARCH LABORATORY
MINISTRY OF PUBLIC MANAGEMENT, HOME AFFAIRS,
POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

ERRATA

to

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

January 1993 — December 1993

Corrections are in boldface

Date	Time	fmin	ftEs	h'F	foF2	fxl
1/24	20:00	18	37	A	S	S
1/31	00:00	16	40	S	S	S
2/ 4	18:00	31	31EB	245EB	54JS	60X
2/ 5	06:00	30	42	A	S	S
2/ 6	06:00	18	37	A	60F	72
2/16	12:00	56ES	56ES	S	70DS	S
	13:00	56ES	56ES	S	80R	86OX
	15:00	54ES	54ES	S	80R	86OX
2/18	20:00	14	33	320EA	36S	42OX
2/21	16:00	30	30EB	215	60F	70
4/ 2	14:00	58	58EB	B	71	77X
4/20	01:00	19	41	315EA	42	48OX
	10:00	31	31EB	B	44UR	50OX
	13:00	36	36EB	B	59F	69
4/24	13:00	50ES	50ES	260ES	67V	73V
4/29	10:00	17	20	215	68	74X
5/14	16:00	B	B	B	B	B
5/25	09:00	B	B	B	B	B
8/ 6	20:00	10	33	220	35US	41OX
8/ 7	21:00	9	26	S	S	S
8/ 8	00:00	23	39	A	S	S
	21:00	S	S	S	S	S
	23:00	18	26	S	S	S
8/11	18:00	28	28EB	290EB	31R	37OX
	19:00	16	16EB	250EB	19UR	25OX
8/29	11:00	C	C	C	C	C
	14:00	23	23EB	225	41	47OX
10/2	19:00	B	B	B	B	B
10/4	01:00	B	B	B	B	B
10/7	12:00	18	37	A	S	S

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INTRODUCTION

This data book gives summarized results for vertical soundings of the ionosphere at Syowa Station, Antarctica in 1995. The observations were conducted by the Communications Research Laboratory under the sponsorship of the National Institute of Polar Research of Japan. The location of the station, specifications of the ionosonde, and the symbols used in this data book are as follows:

LOCATION SYOWA STATION

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69° 00.4' S	39° 35.4' E	-69.8°	78.2°

SPECIFICATIONS OF THE IONOSONDE USED AT SYOWA STATION

Items	Specifications
Frequency Range	400 k Hz - 15MHz
Transmitting Power	10kW (peak value)
Duration of Sweep	20 s
Transmitted Pulse Width	80 μ s
Pulse Repetition Frequency	50 Hz
Frequency Marker	every 1 MHz
Height Range	0 - 900km
Height Marker	every 50km
Recording Media	35 mm film
Power Supply	100-V-AC, 2.0kVA
Transmitting Antenna and Receiving Antenna	30-m-high vertical delta antennas terminated by 600 Ω

OBSERVERS

Observer: K. Inamori
Scaler: K. Fukushima

DESCRIPTION

- a. 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) "

b. Characteristics of Ionosphere

- fxl Top frequency of spread F traces or oblique traces.
 foF2 Ordinary wave critical frequency for the F2 layer.
 fEs(ftEs) Top frequency of Es layer as reflected overhead
 fmin Lowest frequency showing vertical ionospheric reflection.
 h'F Minimum virtual height of the ordinary wave F trace as a whole.

Symbols

(i) Descriptive Letters.

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

- 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.
 E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range.
 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 stratification.
 K Presence of particle E layer.
 L Measurement influenced by 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 perturbation of parameters - Presence of polar spur traces.
 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 atmospheric.
 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.

- D Greater than.
- E Less than.
- J Ordinary component characteristic deduced from the extraordinary component.
- M Mode interpretation uncertain.
- O Extraordinary component characteristic deduced from the ordinary component.
- 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) Definitions of the CNT, MED, UQ, and LQ

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

Median (MED) of a set of numbers is the middle value when the numbers 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.

IONOSPHERIC DATA STATION SHOWA-ST.

JAN. 1995 f_{XI} (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	O X	S	O X	O X	O X	S	H	X	X	X	X	X	X	O X	X	O X	X		X	X	X	X	X	X	X	
2	O X	S	A	A	X	S	O X	S	O X	Y	Y	Y	O X	X	S	O X	O X	S	X	X	O X	O X	Y	Y	S	
3	A	S	S		B	Y	Y	B	S	Y	O X	X	B	B	B	B						Y	B	O X	O X	
4	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	S	B	B	B	B	B	O X	S	S	
5	S	S	A	B	B	B	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	O X	O X	S	A	
6	B	B	Y	Y	A	B	S	O X	S	B	B	B	B	B	B	B	B	B	B	B	B	X	S	B	B	
7	B	B	B	B	B	B	B	O X	A	Y	O X	B	O X	B	B	O X	B	B	B	O X	O X	X	O X	O X	O X	
8	Y	B	B	Y	S	B	B	Y	O X	X	O X	S	S	O X	O X	O X	O X	S	B	B	B	O X	X	X	X	
9	X	X		O X	O X	O X	O X	O X	O X	B	B	B	B	B	X	O X	O X	O X	O X	O X	O X	O X	O X	X	O X	
10	X	X	O X	O X	O X	X	X	X	O X	X	X	O X	O X	O X	Y	X	A	Y	O X			B	O X	X	X	
11	B		A	A		A	O X	X	S	B	S	S	S	Y	Y	S	O X	Y	X	X	A	A	X	X		
12	X	A	A	A	A	A	O X	O X	O X	X	X	X	S	O X	Y	O X	S	S	S	X	O X	X	X	O X	X	
13	Y	A	X	X	O X	X	B	A	O X	Y		X	B	B	O X	X	O X	O X	O X	O X	O X	B	O X	O X	O X	
14	Y	Y	Y	Y	O X	O X	X	X	X	X	X	X	X	X	A	Y	S	X	X	X	O X	X	X	X	O X	
15	A	O X	X	X	Y	A	X	X	X	X	X	X	X	X	X	X	Y	X	X	X	X	X	A	X	X	
16	X		O X	Y	O X	X	Y	Y	Y	Y	Y	B	O X	O X	O X	O X	B	B	B	O X	Y		Y	A	A	
17	A	S	A		B	A	Y	Y	Y	Y	Y	B	O X	B	B	B	B	B	B	A	S	A	A	A	S	
18	B	A	A	S	S	S	Y	A	Y	B	S	Y	Y	B	B	B	B	O X	O X	X	X	X	O X	O X	O X	
19	A	Y	B	A	S	A	A	A	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	
20	O X	O X	X	X	X	X	X	X	X	X	X	X	X	Y	O X	O X	O X	O X	O X	O X	X	X	X	X	B	A
21	S	B	B		S	Y	Y	Y	S	B	B	B	B	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	
22	Y	S	A	S	S	S	Y	X		X	X	X	X	O X	O X	O X	O X	S	X	O X	X	O X	O X	X	X	
23	S	A	O X	A	S	A	B	S	A	O X	S	O X	O X	S	X	X	S	O X	O X	O X	O X	A	O X	O X	O X	
24	O X	S	O X	S	Y	B	X			O X	O X	X	O X	O X	O X	O X	O X	O X	O X	O X	S	X	X	X	X	
25	X	X	X	X	A					B				S	Y			B	B	B	S	O X	X	X	X	
26	47	44	41		45		S	O X	O X	O X	O X	O X	X	X	Y	B	X	O X	O X	X	X	O X	X	X	O X	
27	O X	O X	O X	X	O X	X	X	X	X	O X	X	X	X	O X	O X	X	X	Y	Y	S	S	S	O X	O X	O X	
28	X	X	X	X	X	Y	O X	O X	Y	O X	X	Y	A	A	O X	Y	Y	X	X	A	X	O X	O X	A	O X	
29	X	Y	S	A		A	Y	B	Y	B	Y	B	Y	B	Y	O X	O X	O X	O X	B	Y	Y	S	A	Y	
30	Y	B	Y	Y	S	B	Y	B	B	B	B	B	B	B	B	Y	B	B	B	B	O X	O X	O X	B	A	S
31	O X	S	S		B	B	B	B	B	B	B	B	B	B	B	B	B	O X	O X	B	B	O X	O X	B	A	B
CNT	14	10	13	14	14	8	14	17	16	15	16	15	18	12	17	14	17	17	21	22	21	21	21	21	18	
MED	X	X	X		X		X	X	X	X	X	X	X	O X	O X	O X	O X	O X	O X	X	O X	O X	X	X	O X	X
U Q	46	44	45	47	50	55	58	60	64	64	62	62	59	58	56	48	53	55	52	50	52	50	54	45	45	
L Q	X	X	X	X	X		X	X	X	X	X	X	X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	O X	X
	48	49	48	49	53	59	63	64	66	67	67	68	64	65	65	58	60	57	55	53	54	54	54	52	49	
	O X	X	X			X	O X	O X	O X	X	X	O X	O X	O X	O X	O X	O X	O X	O X	X	X	X	X	X	X	X
	40	42	43	42	46	51	53	56	52	57	56	58	48	48	48	47	48	48	46	46	46	48	47	42	39	

IONOSPHERIC DATA STATION SHOWA-ST.

JAN. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	R	S	R	R	R	S	H	J	R		J	R	J	S	J	R	R	F	F	J	R	J	S		F		
2	46		37	40	46		57	59	57	58	56	62	62	58	61	54	52	51	46	46	48	48	52	37			
3	D	S	A	A	J	R	S	R	S		Y	Y	Y	R	S		D	S	J	R	R	Y	Y	S	S		
4	36	36			43		52		54				42		41	41	41	46	46	49							
5	A	S	S	F	B	Y	Y	B	S	Y	R	R	B	B	B	B	B	F	F	Y	B	U	R	S	S		
6	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	S	B	B	B	B	U	R	S	D	S	A	
7	S	S	A	B	B	B	B	S	B	B	B	B	B	B	B	B	B	B	B	B	U	R	S	A	B		
8	B	B	Y	Y	A	B	S	R	S	B	B	B	B	B	B	B	B	B	B	B	J	S	D	S	B	F	B
9	B	B	B	B	B	B	B	R	A	Y	R	B	U	R	B	U	S	B	B	U	R	U	S	U	R	S	
10	Y	B	B	Y	D	S	B	B	Y	R	J	R	R	D	S	S		D	S	B	U	R	U	J	S	S	
11	34	44	37	43	47	47	51	51	56	B	B	B	B	B	Y	Y	R	D	S	B	U	R	U	J	S	S	
12	44	34	37	30	43	51	53	56	57	59	54	54	53		50		A	Y	F	B	S	F	F	S	S		
13	B	F	A	A	F	F	A	U	R	S	B	S	D	S	Y	D	S		Y	D	S						
14	32	A	A	A	A	A	R	R	R	51	49	37	40		42	42	41	41	42	45	46	41	34	33	S		
15	Y	A	J	R	J	F	R	B	A	Y	F			B		Y	D	S	J	R	J	R	J	R	F	F	
16	Y	Y	Y	Y	F	U	R	R	F	F	J	F	J	R		Y	D	S	J	R	J	R	J	R	F	R	
17	A	R	R		Y	A	J	S	60	58	60	61	62	J	S	Y	J	R	49	50	52	51	A	59	46	38	
18	F	30	29	37	42	40	47	48	Y	Y	Y	B	U	R	R	B	B	B	B	R	Y	F	Y	A	A		
19	A	S	A	F	F	B	A	Y	Y	B	Y	B	R	B	B	B	B	B	A	S	A	A	A	A	S		
20	B	A	A	S	S	D	S	Y	A	Y	B	S	Y	Y	B	B	U	R	R	J	S	S	R	J	S	R	
21	A	Y	B	A	S	A	A	A	R		R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	
22	35	R	43	43	50	F	F	J	F	J	R	R	R	Y	U	R	R	U	S	R	J	S	B	A	A		
23	S	B	B	F	S	Y	Y	Y	S	B	B	B	U	R	R	R	U	R	R	R	R	R	R	R	R		
24	Y	S	A	D	S	S	Y	J	S	F	J	R	R	R	R	D	S		R	J	S	U	R	J	F		
25	S	A	R	A	S	A	B	S	A	R	S	R	R	D	S	J	R	D	S	R	R	A	U	R	J	S	
26	R	S	R	S	Y	B	J	F	F	F	F	R	R	J	S		R	R	R	D	S	J	R	J	S		
27	J	S	J		A	J	F	F	F	Z	F	B	F	S	F	Y	J	S	B	B	D	S	R	B	B		
28	43	46	45	43	53	51	58	64	64	64	61	61	53	51	52	51	52	51	42	46	46	45	50	45			
29	F	F	F	Y	J	S	S	R	F	R	J	F		Y	B	J	R	R	R	J	R	U	R	J	R	R	
30	40	34	29	39	39	53	56	53	61	62	62	58		R	R		52	53	55	52	53	46	47	39	42		
31	41	41	39	32	48	52	56	62	64	63	64	64	66	68	66		Y	Y	D	S	U	R	U	S	S		
32	F	37	36	42	J	S	Y	U	R	R	Y	R	J	S	Y	A	A	R	Y	Y	J	R	J	S	A	R	
33	40	Y	D	S	A	F	A	Y	B	Y	B	Y	J	S	R	Y	R	B	Y	Y	Y	S	A	Y	Y		
34	Y	B	Y	Y	S	B	Y	B	B	B	B	B	B	B	Y	B	B	B	B	R	R	R	B	A	S		
35	R	S	S	F	B	B	B	B	B	B	B	B	B	B	B	B	U	R	B	B	B	B	R	A	B		
36	42			33												39	44				39						
CNT	14	11	14	15	15	9	14	17	16	15	16	18	19	13	17	19	19	20	24	22	22	22	22	18			
MED	38	36	38	40	43	48	52	54	56	58	56	58	53	52	50	42	48	48	46	44	46	44	38	38			
U Q	42	43	43	42	47	52	53	57	59	61	61	61	58	59	59	51	53	51	47	47	48	48	46	43			
L Q	34	34	37	33	37	38	47	50	46	51	50	47	42	42	42	41	42	42	41	40	42	41	35	33			

IONOSPHERIC DATA STATION SHOWA-ST.

JAN. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	44	32	33	45	47	26	32	32	33	33	34	38	37	38	32	27	25	33	46	60	21	28	20		
2	30	32	70	59	31	43	38	42	42	41	42	32	30	S	36	32	30	36	28	41	37	42	41	43		
3	60	42	41	21	B	38	33	B	42	38	E B	E B	B	B	B	B	B	29	37	20	B	43	43	41		
4	58	B	B	73	B	B	B	B	44	B	B	B	B	B	B	S	B	B	B	B	26	37	38	52		
5	42	41	54	B	B	B	B	42	B	B	B	B	B	B	B	B	B	B	E B	E B	44	43	117	B		
6	B	B	38	36	57	B	39	33	26	B	B	B	B	B	B	B	B	B	B	E B	E B	37	B	30		
7	B	B	B	B	B	B	B	33	80	37	27	B	E B	B	B	E B	B	B	21	26	E B	E B	33	28		
8	34	B	B	E B	E B	B	B	36	34	26	26	27	S	30	34	38	26	26	B	E B	E B	25	17	18		
9	18	19	28	27	31	33	34	34	29	B	B	B	B	30	E B	B	28	42	26	26	31	27	41	E B		
10	E B	B	31	24	24	23	21	24	23	26	27	28	36	32	28	25	60	35	26	27	B	E B	E B	41		
11	B	39	69	44	26	32	60	29	41	B	34	27	26	E B	B	29	33	27	41	32	20	41	41	33	27	
12	41	46	43	48	46	37	27	24	27	27	27	27	27	31	41	51	30	34	24	24	31	19	32	36		
13	32	71	34	34	34	38	B	79	E B	E B	31	37	29	28	B	B	27	26	26	29	27	E B	E B	27	33	
14	31	31	37	27	37	38	34	25	27	34	27	29	34	65	36	42	27	31	42	25	24	20	34	31		
15	41	40	30	29	37	43	44	24	33	28	28	29	32	41	41	33	33	38	51	38	69	110	33	17		
16	29	26	30	35	80	37	53	41	43	35	37	B	28	E B	E B	B	B	B	B	28	37	43	43	70	51	
17	59	44	51	36	32	B	53	26	37	B	46	B	30	B	B	B	B	B	72	41	66	85	71	48		
18	B	68	63	42	42	33	30	102	27	B	43	37	35	B	B	B	36	E B	E B	34	33	34	35	33	37	
19	38	32	B	47	40	51	64	41	36	26	28	26	27	29	34	33	27	33	30	E B	E B	31	38	32	17	
20	29	32	34	28	23	24	26	19	20	32	27	39	41	41	27	33	41	30	25	24	22	23	B	48		
21	42	B	B	43	42	42	38	43	42	B	B	B	31	29	28	31	41	E B	E B	26	20	E B	E B	E S	33	
22	32	34	70	32	27	33	32	36	27	28	28	32	32	42	30	46	32	E B	E B	31	28	30	23	31	18	35
23	34	59	51	52	44	55	B	S	47	34	S	36	32	28	27	27	37	33	58	35	37	37	31	32		
24	32	27	38	41	37	B	E B	E B	42	27	34	48	26	29	33	39	40	31	27	E B	E B	E B	21	17	E B	
25	13	18	18	30	50	42	34	28	34	36	B	26	28	36	51	51	B	B	B	37	27	B	23	17		
26	E B	B	23	27	30	31	41	36	33	26	33	33	30	36	33	B	37	30	33	30	27	E B	E B	E B	29	
27	33	19	24	32	30	28	34	27	27	32	27	39	41	32	32	E B	32	33	36	37	32	42	33	53	39	
28	30	32	32	26	24	31	41	52	32	33	32	36	79	70	41	37	37	31	41	52	42	51	70	27		
29	23	31	46	59	31	52	33	B	37	B	37	32	28	28	17	31	26	B	43	42	49	71	43	42		
30	34	B	37	26	43	B	41	B	B	B	B	B	B	E B	E B	B	B	B	E B	E B	E B	B	71	39		
31	32	S	S	32	B	B	B	B	B	B	B	B	B	B	B	E B	E B	B	B	29	27	27	B	67	B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	27	24	25	29	26	22	24	25	28	20	22	21	22	20	22	23	21	21	27	27	28	28	30	28		
MED	32	32	37	34	36	38	35	33	34	33	28	31	32	32	32	33	30	31	30	28	32	32	33	33		
U Q	41	43	51	44	43	43	42	42	42	36	34	36	35	40	40	38	36	35	37	37	42	42	43	41		
L Q	29	29	30	28	31	33	32	26	27	28	27	28	28	30	28	31	27	29	27	25	26	24	28	25		

IONOSPHERIC DATA STATION SHOWA-ST.

JAN. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	14	12	16	12	8	17	10	11	12	12	17	15	12	17	16	17	17	17	16	9	11	13	12	17	
2	10	22	19	21	22	16	17	12	17	17	21	16	17	S	16	17	17	17	9	10	24	19	17	17	
3	18	20	17	8	B	21	19	B	17	17	34	34	B	B	B	B	B	B	25	18	17	B	15	16	17
4	25	B	B	17	B	B	B	B	23	B	B	B	B	B	B	S	B	B	B	B	22	28	22	9	
5	24	31	20	B	B	B	B	27	B	B	B	B	B	B	B	B	B	B	17	30	17	17	17	B	
6	B	B	21	16	17	B	25	17	22	B	B	B	B	B	B	B	B	B	B	29	24	B	7	B	
7	B	B	B	B	B	B	B	17	32	17	17	B	32	B	B	32	B	B	17	17	24	30	16	15	
8	16	B	B	23	31	B	B	23	15	17	17	20	S	17	22	17	17	17	B	B	31	17	12	16	
9	12	15	16	15	17	22	15	16	16	B	B	B	B	17	32	22	21	17	17	16	B	15	9	9	23
10	17	19	15	16	17	17	12	15	9	11	16	16	16	21	23	17	22	22	19	B	22	24	16	17	
11	B	12	23	22	14	15	16	16	31	B	23	25	17	31	22	33	16	31	19	16	12	10	16	9	
12	9	17	29	24	17	17	17	15	13	16	17	17	17	16	17	17	17	24	16	16	15	13	12	17	
13	28	17	16	15	9	17	B	30	31	22	15	12	B	B	19	19	16	24	17	B	32	22	13	13	
14	17	19	17	22	18	17	12	12	12	15	16	16	17	17	17	17	16	11	16	17	9	8	10	19	
15	16	11	17	18	20	16	12	9	16	16	17	17	17	17	17	17	17	13	15	9	16	9	9	13	
16	9	16	9	9	9	18	17	12	26	23	17	B	24	35	50	B	B	B	16	32	17	15	9	9	
17	9	9	17	17	11	B	18	23	31	18	B	18	18	B	B	B	B	B	17	13	41	16	15	16	
18	B	17	18	21	22	17	20	34	16	B	12	24	24	B	B	B	23	31	17	15	14	12	9	7	
19	8	17	B	18	31	16	17	18	17	17	17	17	17	17	17	17	23	28	23	32	31	17	17	14	
20	15	9	9	9	8	16	15	17	17	17	21	22	21	26	23	17	17	17	18	16	12	9	B	24	
21	22	B	B	24	23	23	24	32	17	B	B	B	17	20	17	23	21	32	22	17	24	25	E	S	16
22	17	30	17	17	20	23	22	16	14	16	18	17	14	17	17	19	17	31	28	24	17	16	11	12	
23	17	17	17	17	12	17	B	S	17	17	S	17	17	15	17	22	21	17	17	23	16	15	13	9	
24	9	8	15	17	30	15	27	21	48	18	23	24	17	22	24	31	17	28	21	24	17	11	17	17	
25	10	9	12	10	17	15	9	16	14	23	B	19	20	17	17	23	B	B	22	22	B	B	17	17	
26	17	17	13	14	16	14	17	17	9	17	12	17	17	28	B	24	18	17	17	16	31	31	31	18	
27	17	17	16	15	12	9	12	12	17	15	17	19	18	18	24	32	25	24	18	16	15	17	11	11	
28	9	9	10	17	17	9	14	15	15	15	17	16	18	21	23	22	25	24	17	13	17	18	18	20	
29	15	17	9	9	12	17	17	B	31	B	31	20	9	17	17	23	17	B	23	17	16	15	17	18	
30	16	B	15	17	23	B	19	B	B	B	B	B	B	B	32	B	B	B	14	27	27	B	15	24	
31	9	S	S	14	B	B	B	B	B	B	B	B	B	B	B	30	17	B	B	19	B	15	32	B	
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	
CNT	31	30	30	31	31	31	31	30	31	31	30	31	30	30	31	30	31	31	31	31	31	31	31	31	
MED	16	17	17	17	17	17	17	17	17	17	18	20	18	21	23	23	21	25	17	17	22	17	15	17	
U Q	22	B	B	21	30	B	25	30	31	B	B	B	B	B	B	B	B	B	23	29	31	24	17	19	
L Q	10	12	15	14	12	16	15	15	15	16	17	17	17	17	17	17	17	17	17	16	15	13	11	13	

IONOSPHERIC DATA STATION SHOWA-ST.

JAN. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	230	E A 235	A	A	A	A	205	205	200	235	205	200	200	200	200	215	200	200	200	A E A 275	A A 210	205	245		
2	E A 300	A	A	A E A 290	A	A	200	A	200	A	A	200	200	S	235	205	200	235	235	A	A	A	A	A	
3	A	A	A	255	B	A	A	B	A	A E B E B 220 240	B	B	B	B	B	B	B	E A 240	250	S	B E A 250	220	A		
4	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	S	B	B	B	B	H 225	A	A	A	
5	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	230	245	A	A	B	
6	B	B	A	A	A	B	A E A 250	S	B	B	B	B	B	B	B	B	B	B	B	B	235	255	B E A 285	B	
7	B	B	B	B	B	B	B	A	A	220	200	200	200	B	B	205	B	B	205	215	H 210	255	A E A 265		
8	A	B	B	A E B 240	B	B	A E A 240	200	200	220	B	B	B	S	200	200	200	200	200	B	B E B 270	215	200	240	
9	245	260	235	A	A	A E A E A 270 250	200	B	B	B	B	B	200	215	200	200	200	205	200	220	250	205	E B 250		
10	235	A	310	A E S 270	225	205	210	205	200	205	205	200	200	Y	200	A	245	215	205	B E A E B 250 220	250	250	A		
11	B	A	A	A	250	250	215	A	B	A	240	200	200	E S 240	230	215	250	245	A E A 250	A	A	225	E A 270		
12	A	A	A	A	A	A	210	E S 240	220	200	200	205	200	S	210	A	200	E A 240	215	225	H 220	205	A	A	
13	Y	A	A	A	A	A	B	A	205	200	200	B	B	B	205	205	200	205	215	B E B 250	240	245	A		
14	A	A	A	Y	A	A E A 270	200	200	200	205	200	A	200	A	205	200	240	220	200	200	200	220	220	A	
15	A	205	A	A	A	A	A	200	200	200	230	220	200	205	205	200	200	200	A	230	A E A E A 240 230	230	E A 230		
16	E A E A E A 300 290	275	290	A	A	A	225	A	A	215	215	225	B	B	B	B	B	B	230	A	A	A	A	A	
17	A	A	A	A E A 290	250	B	A	Y	A	B	A	B	205	B	B	B	B	B	A	A	A	A	A	A	
18	B	A	A	A	A E A 270	Y	A	Y	B	A	Y	Y	B	B	B	B	E B E B 240 240	235	240	H 240	E A E A 250 250	245	E A 280		
19	A	A	B	A	A	A	A	A	200	200	200	205	225	205	230	205	250	240	225	270	H 250	250	250	A	
20	E A E A E A 265 265	275	A	235	245	225	205	200	200	200	E A 220	215	A	200	205	200	200	225	205	200	200	235	B A 235		
21	A	B	B E A 255	A	A	A	A	A	A	B	B	B	250	225	215	205	210	210	E A 230	205	215	E B E S 240 255	A		
22	Y	S	A	A	S	A	A	A	205	200	200	200	215	215	200	200	205	E B E B E A 235 240 235	225	250	250	245	A		
23	A	A	A	A	A	A	B	S	A	H 205	S E A 260	200	200	200	H 215	205	225	A E A E A 245 250	250	250	245	270	A		
24	A	A E A 250	A	A	A	B	A	H 205	215	B	200	205	200	220	205	205	200	200	210	205	E B 225	215	200	E B 235	
25	245	250	E A E A 305 240	A	A E A 230	200	200	200	200	200	210	200	200	210	200	A	B	B E A E A 220 250	B	220	250	235	250	A	
26	245	A E A 270	A	A	251	215	200	200	200	200	200	200	200	200	A	A	205	200	200	200	H 205	240	240	250	240
27	E A 245	250	A	A	220	220	205	200	200	205	200	200	A	A	A	A	E B 205	200	200	200	E A E A E A 220 250 255	250	250	255	A
28	E A E A E A 255 270	275	A	A	220	220	205	200	200	200	200	200	A	A	A	A	200	200	255	A	A	A	A	A	
29	E A 260	A	A	A	205	A E A 250	B	A	B	A	B	A	200	200	200	210	240	205	B	A	A	A	A	A	
30	Y	B	A	Y	A	B	A	B	B	B	B	B	B	B	B	B	240	B	B	B	250	B	B	A	A
31	300	S	S	A	B	B	B	B	B	B	B	B	B	B	B	B	E B 220	205	B	B E A 250	B	A	A	B	
CNT	12	8	8	5	9	6	12	15	16	15	16	19	19	15	19	19	22	20	23	19	20	20	19	15	
MED	241	238	275	255	242	228	210	202	200	200	200	202	200	200	205	205	200	201	U 218	220	U 222	228	225	250	
U Q	E A E A E A 282 268	290	290	260	250	240	225	205	205	205	220	205	220	215	215	205	235	E 240	E A E A 245	250	E A E A 250	250	250	E A 265	
L Q	245	242	E A E A 260 248	228	220	205	200	200	200	200	200	200	200	200	200	200	200	200	205	205	220	218	220	240	

IONOSPHERIC DATA STATION SHOWA-ST.

FEB. 1995 fxI (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	S	B	B	B	S	B	B	B	B	B	B	O	X	X	B	B	B	O	X	O	X	O	X	S	O	X	S
2	B	S	S	O	X		O	X	Y	B	B	B	O	X	B	B	B	O	X	B	S	B	O	X	S	Y	A		
3	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	O	X		A	B	B			
4	S	B	B	O	X		B	B	B	B	B	Y	Y	B	B	B	B	O	X	B	O	X	Y	S	O	X	S		
5	S	S	S	S	Y	Y	O	X	O	X	S	B	B	O	X	O	X	O	X	X	Y	X	X	O	X	X	X	X	X
6		O	X	Y	O	X	Y	B	B	O	X	O	X	X	O	X	O	X	X	X	B	X	V	Y	B	X	A		
7	34	33		A	S	B	S	O	X	B	Y	Y	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O
8	Y	A	S	Y	Y	B	B	B	B	B	B	B	Y	B	Y	B	O	X	O	X	X	X	O	X	X	A	A		
9	A	Y		O	X		O	X	X	B	B	B	O	X	O	X	X	B	S	O	X	O	X	O	X				
10	51	O	X		O	X	X	X	X	O	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11	50	39		B	A	S	A	O	X	X	S	X	B	B	O	X	O	X	X	X	X	B	Y	A	O	X	S		
12	S	45	A	S	S	A	O	X	X	A	B	O	X	X	B	O	X	B	B	B	O	X	X	X	A	O	X	A	
13	A	A	B	B	B	B	O	X	A	A	A	B	B	B	B	B	B	X	O	X	B	O	X	A	O	X	O	X	
14	A	A	A	B	B	B	B	B	B	O	X	B	O	X	X	B	O	X	B	B	Y	O	X	A	A	A	Y		
15	A	S	O	X	B	B	A	B	B	B	B	B	O	X	B	B	B	B	S	O	X	X	A	B	A	A	A		
16	B	B	A	B	B	B	O	X	B	B	B	B	B	B	B	B	S	B	O	X	O	X	B	X	O	X	X	S	
17	A	O	X	B	A	A		X	X	X	B	S	O	X	O	X	B	X	X	X	B	X	X	X	X	X	X	X	
18	45	A	S	A	S	B	Y	Y	A	O	X	O	X	X	B	B	O	X	O	X	O	X	X	X	S	B	Y		
19	A	S	A	S	S	O	X	X	B	B	O	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	
20	Y	A	O	X	Y	Y	B	O	X	Y	X	X	X	X	X	X	X	X	X	X	O	X	O	X	X	X	A		
21	A	30	28		A	B	O	X	O	X	X	X	X	X	O	X	X	X	S	B	X	B	X	O	X	O	X	X	
22	41	S	S	B			X	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	O	X	
23	45	42	41	40	40		52		63	63				S	B	B	B	S	S			63	57		64		Y		
24	Y	Y	S	Y	A		42	52	54	56	54	54	58	62	68	70	62	58	58	54	51	50	50	57	49		X		
25	X	A	A	O	X	O	X		O	X	X	X	X	X	X	X	X	A	X	X	X	X	X	X	X	O	X	X	
26	O	X	O	X	Y		A	A	Y		70	70		63			O	X	O	X	B	B	A		S	A	S		
27	A	A	O	X					S	O	X	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
29																													
30																													
31																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	9	9	7	9	9	9	17	11	11	14	13	13	16	14	14	12	17	14	18	21	20	16	16	11					
MED	45	42	45	44	46	47	52	56	59	60	63	58	60	62	62	62	57	57	53	51	48	48	46	47					
U Q	50	46	48	48	50	52	54	59	63	63	64	62	62	65	69	64	62	59	54	52	50	50	49	51					
L Q	40	36	35	40	44	43	47	53	52	54	52	46	46	48	51	56	49	51	47	45	44	44	40	45					

IONOSPHERIC DATA STATION SHOWA-ST.

FEB. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	S	B	B	B	S	B	B	B	B	B	B	R	R	B	B	B	R	R	R	S	R	S							
2	B	S	S	R	F	U	R	Y	B	B	B	B	B	B	B	B	U	S	B	S	B	U	S	S	Y	A					
3	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	U	R	F	A	B	B						
4	S	B	B	S	B	B	B	B	B	B	B	Y	B	B	B	B	40	B	R	Y	S	F	R	D	S						
5	S	S	S	S	Y	Y	R	R	S	B	B	R	R	R	R	Y	48	47	47	46	43	41	J	S	F						
6	F	R	Y	S	Y	B	B	U	R	R	R	J	R	R	R	R	58	58	B	V	Y	B	31	A							
7	F	F	A	S	B	S	U	F	B	Y	Y	R	R	R	R	R	R	D	S	U	R	R	R	S							
8	Y	A	S	Y	Y	B	B	B	B	B	B	B	Y	B	Y	B	38	38	37	36	34	36	A	A							
9	A	Y	F	F	F	F	R		B	B	B	R	R	U	R	B	D	S	R	R	R	F	F	F	F						
10	F	F	F	F	R	J	R	J	F	S		A	R	U	R	A	J	R	J	R	51	50	46	43	40	37	J	S	41		
11	V	J	S	B	A	S	A	R	D	S	B	B	R	R	R	R	45	52	51	51	50	46	43	40	37	J	S	41			
12	S	F	A	S	S	A	R	A	B	R	B	B	R	B	R	B	B	B	B	40	37	35	A	R	A	A	A	S			
13	A	A	B	B	B	B	F	A	A	A	B	B	B	B	B	B	40	34	B	R	A	R	A	U	R	33	A	Y			
14	A	A	A	B	B	B	B	B	B	R	B	B	B	B	B	B	37	B	B	Y	32	A	A	A	A	Y	A	Y			
15	A	D	S	R	B	B	A	B	B	B	B	B	U	R	B	B	B	B	D	S	39	47	39	A	B	A	A	A			
16	B	B	A	B	B	B	R	B	B	B	B	B	B	B	B	B	D	S	B	45	45	B	29	29	30	S	S	S			
17	A	U	R	B	A	J	F	A	F		B	D	S	U	R	U	R	B	J	F	B	43	42	40	34	30	F	F			
18	F	A	D	S	A	F	B	Y	Y	A		R	F	B	B	B	B	R	R	R	47	40	D	S	B	Y	Y	Y			
19	A	S	A	S	S	R	J	S	B	B	R	F	R	R	R	R	56	54	46	46	44	44	J	S	S	R	R	R			
20	Y	A	U	S	Y	Y	B	R	Y		46	52	57	56	55	60	58	52	J	R	54	53	48	49	40	25	F	F	A		
21	A	F	J	F	A	B	U	S		F	F		U	R	J	R	D	S	B	J	S	B	46	43	42	41	41	R	J	S	
22	F	S	S	B	J	F	F	J	S	J	S	F	U	R	U	R	D	S	R	U	R	R	R	S	R	S	F	F	F		
23	F	F	R	F	Y	J	F	D	S	J	S	B	D	S	D	S	B	B	B	D	S	D	S	R	B	S	B	Y	Y		
24	Y	Y	S	Y	A	F	46	48	50	48	48	52	53	62	60	52	52	52	48	45	J	S	S	U	S	S	U	S	S		
25	R	A	A	U	S	F	F	R		B		F	J	F	F		A	54	47	47	46	45	44	44	44	46	A	D	S		
26	R	U	S	Y	F	A	A	Y	J	F	F	Y	D	S	F	F	R	75	B	B	A	F	S	A	D	S	37	S	S		
27	A	A	U	R	F	F	F	F	S	U	R	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
29																															
30																															
31																															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	9	9	8	9	9	9	17	12	12	14	13	15	18	15	14	15	18	17	18	21	20	17	16	13							
MED	F	34	34	37	34	37	41	45	50	52	54	55	52	53	56	56	54	50	51	47	45	42	41	39	40						
U Q	43	40	42	38	42	42	47	53	54	57	58	56	55	59	60	57	55	52	48	46	44	44	42	41							
L Q	F	F	F	F	F	F	R		R	R	R	R	R	R	R	R	R	R	S	R	39	36	34	32	35						

IONOSPHERIC DATA STATION SHOWA-ST.

FEB. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	32	B	B	B	37	B	B	B	B	B	BE	B	31	B	B	B	26	E	B	33	37	41	42				
2	B	39	42	37	43	42	37	B	B	BE	B	B	B	B	B	B	26	B	36	BE	B	25	38	31	70				
3	69	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	28	27	46	B	B				
4	37	B	B	27	B	B	B	B	B	B	23	33	B	B	B	BE	B	BE	B	30	30	29	41	23	E	B	22	42	
5	S	S	38	35	37	29	35	28	38	B	BE	B	32	30	29	29	33	29	23	27	26	E	BE	BE	BE	B	18	18	13
6	12	33	32	27	40	B	B	33	36	32	31	29	28	26	33	36	29	B	43	25	37	B	B	51	41				
7	32	38	36	43	B	37	37	B	33	33	34	29	32	30	30	30	E	BE	B	E	B	26	23	20	19	E	B	17	23
8	32	64	37	40	37	B	B	B	B	B	B	B	35	B	27	B	E	S	27	28	27	25	70	30	59	41			
9	46	35	32	31	31	26	23	26	B	B	B	32	30	34	B	29	33	34	32	33	26	E	BE	BE	B	21	21	16	
10	31	30	31	18	36	26	27	25	26	27	34	69	38	53	36	39	30	27	23	18	17	26	14	11					
11	30	32	B	49	40	41	37	28	24	26	B	B	34	28	27	27	26	B	33	48	43	51	47	45					
12	39	33	80	38	34	38	54	41	B	27	27	BE	B	BE	B	B	B	B	27	27	22	59	51	69					
13	51	46	B	B	B	B	26	64	41	38	B	B	B	B	B	BE	BE	B	B	27	39	36	38	46					
14	37	41	37	B	B	B	B	B	BE	B	B	27	E	B	B	B	B	B	31	25	37	70	42	33					
15	53	37	35	B	B	B	41	B	B	B	B	BE	B	B	B	B	BE	BE	S	30	25	26	39	B	42	40			
16	B	B	40	B	B	B	34	B	B	B	B	B	B	B	BE	B	B	31	24	24	B	21	26	21	31				
17	40	44	B	41	43	54	44	32	34	27	B	27	E	BE	B	B	B	31	27	BE	B	23	23	20	16	52			
18	24	39	43	57	28	B	40	38	E	BE	BE	BE	B	B	B	BE	BE	B	34	29	21	19	E	BE	B	B	B	24	
19	70	32	49	38	38	32	35	B	B	46	33	30	48	30	29	26	28	27	E	BE	B	E	B	E	B	E	B	17	21
20	39	41	45	29	30	B	46	31	32	27	27	33	31	33	30	28	27	22	20	38	38	42	32	31					
21	38	38	34	52	B	44	42	46	33	27	27	29	28	30	30	47	BE	B	BE	B	BE	B	32	21	27	17	31		
22	36	39	40	B	27	25	21	E	B	23	23	26	24	27	30	30	30	22	32	37	32	E	B	21	24	31	31	19	
23	31	19	19	20	21	32	29	22	24	27	B	28	34	B	B	B	B	38	38	28	24	E	B	BE	B	B	B	37	
24	41	41	49	34	41	32	23	20	24	25	27	32	42	52	52	43	37	31	33	37	30	39	25	30					
25	39	40	43	32	31	29	26	26	32	32	36	36	39	40	59	62	80	57	32	27	37	45	39	30					
26	22	30	40	48	59	58	44	58	45	B	52	47	32	32	E	BE	BE	BE	B	B	B	42	16	42	80	47			
27	58	58	42	32	28	26	35	37	37	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29																													
30																													
31																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	23	22	22	20	18	17	21	18	16	16	14	18	19	16	15	16	19	17	21	24	25	24	23	25					
MED	38	38	39	36	36	32	35	32	33	27	29	30	32	30	30	31	30	28	27	26	26	30	31	33					
U Q	46	41	43	42	40	42	41	41	38	32	34	33	35	37	33	42	34	32	32	31	38	42	42	44					
L Q	31	33	34	30	30	28	26	26	25	27	27	29	30	30	29	28	28	27	24	E	B	E	BE	B	24				

IONOSPHERIC DATA STATION SHOWA-ST.

FEB. 1995 fmin (0.1MHz) 45'E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	17	B	B	B	31	B	B	B	B	B	B	32	24	B	B	B	18	29	16	30	18	9	
2	B	18	9	10	14	12	28	B	B	B	31	B	B	B	B	B	21	B	17	B	25	16	20	19	
3	22	B	B	B	B	B	B	18	B	B	B	B	B	B	B	B	B	B	B	21	17	14	B	B	
4	21	B	B	9	B	B	B	B	B	B	20	21	B	B	B	B	30	B	30	18	13	21	22	13	
5	S	S	21	21	27	23	21	18	20	B	B	32	21	23	24	25	21	18	20	14	22	18	E S	9	
6	8	7	23	12	21	B	B	21	17	18	19	18	19	22	23	15	13	B	19	21	24	B	13	7	
7	7	11	22	22	B	23	17	B	23	18	18	17	13	13	18	18	31	29	18	23	12	16	17	17	
8	10	8	20	22	31	B	B	B	B	B	B	B	24	B	21	B	21	28	17	18	17	15	10	7	
9	7	9	21	16	14	16	13	21	B	B	B	21	20	21	B	24	17	15	17	16	13	21	21	12	
10	9	9	9	11	10	16	20	17	18	21	29	24	30	30	22	20	18	14	16	12	9	17	9	8	
11	8	22	B	21	22	28	21	22	17	17	B	B	29	19	19	18	17	B	B	27	14	14	16	17	16
12	9	10	14	14	19	24	19	29	B	17	17	B	31	B	32	B	B	B	23	13	9	22	26	7	
13	17	20	B	B	B	B	16	21	24	31	B	B	B	B	B	B	30	30	B	20	18	21	10	17	
14	25	21	23	B	B	B	B	B	B	32	B	21	32	B	B	22	B	B	20	22	13	19	21	18	
15	17	16	11	B	B	20	B	B	B	B	31	B	B	B	B	B	B	30	E S	25	17	13	B	14	7
16	B	B	21	B	B	B	18	B	B	B	B	B	B	B	B	31	B	19	18	B	13	13	9	9	
17	8	15	B	7	12	37	18	14	13	15	B	25	32	47	B	23	25	19	B	23	17	20	8	20	
18	10	9	19	25	13	B	30	21	21	30	30	31	20	24	B	B	33	29	18	16	23	20	B	10	
19	9	9	9	23	23	16	11	B	B	20	21	17	16	18	20	17	18	27	24	22	20	10	17	9	
20	15	16	19	21	17	B	21	20	15	16	22	11	23	16	21	19	22	20	17	18	18	12	5	18	
21	9	10	17	20	B	16	12	17	13	18	12	22	22	30	30	47	B	30	B	32	21	27	17	13	
22	9	29	23	B	20	16	15	23	14	17	22	21	19	21	19	20	17	22	16	21	12	16	12	16	
23	17	8	16	12	17	17	13	17	17	22	B	18	22	B	B	B	31	27	23	24	26	B	9		
24	22	17	15	24	12	17	16	16	17	17	17	15	17	14	14	13	13	13	16	13	8	12	17	8	
25	13	11	10	9	9	9	6	12	12	14	18	11	14	12	14	11	16	13	10	6	7	7	9	9	
26	5	7	11	12	11	15	14	14	13	B	13	13	7	18	30	50	60	B	B	24	11	23	5	9	
27	14	13	19	9	9	9	12	16	19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	26	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	
MED	12	14	19	21	21	23	19	21	21	26	30	23	24	30	30	28	28	29	19	20	15	18	17	10	
U Q	21	21	23	B	B	B	31	B	B	B	B	B	B	B	B	B	B	B	B	27	23	20	22	21	17
L Q	9	9	14	12	13	16	14	17	17	17	19	18	19	19	21	19	18	19	17	16	12	15	10	9	

IONOSPHERIC DATA STATION SHOWA-ST.

FEB. 1995 h'F (KM) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	A	B	B	B	A	B	B	B	B	B	B	230	E A 230	B	B	B	230	E B 250	A	A	E A 255	A	
2	B	A	A	235	E A E A 245 260	A	B	B	B	200	B	B	B	B	B	B	240	B	A	B	E B 270	A	A	A	
3	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	E A 250	A	A	B	B	
4	A	B	B	E A 280	B	B	B	B	B	B	Y	Y	B	B	B	B	E B 220	B	E B 300	Y	A	E A 270	B	E A 240	
5	S	S	A	A	A	A	E S 260	A	B	B	200	200	200	215	E A 225	225	215	E A 240	215	230	235	E B 250	240	A	
6	E S 265	A	A	200	A	B	B	A	A	200	205	200	205	220	200	200	205	B	E A 215	250	Y	B	250	A	
7	A	A	A	A	B	A	A	B	A	205	215	200	200	205	200	200	E B 215	200	210	235	E A E A 250 250	245	230	A	
8	A	A	A	A	A	B	B	B	B	B	B	B	Y	B	250	B	A	E B 240	B	H	240	230	A	A	
9	A	A	A	A	A	A	240	235	B	B	B	200	200	190	B	200	210	200	230	230	250	250	235	245	
10	240	E A E A 250 270	A	E A 275	230	E A 260	215	205	200	200	B	B	A	E A 225	A	205	200	200	200	215	195	200	240	245	
11	245	S 250	B	A	S	A	E A 275	215	200	B	B	A	200	200	200	210	B	B	B	A	A	A	A	A	
12	S	200	A	A	S	A	A	A	B	230	200	B	235	B	240	B	B	B	E A 250	H	245	250	A	A	
13	A	A	B	B	B	B	250	A	A	A	B	B	B	B	B	B	240	E B 260	B	B	A	A	E A 250	240	
14	A	A	A	B	B	B	B	B	B	E B 270	B	200	260	B	B	B	250	B	B	A	E A 230	A	A	A	
15	E A 230	A	205	B	B	A	B	B	B	B	B	210	B	B	B	B	B	E B E S 250 240	250	A	B	A	A	A	
16	B	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	H 225	H 200	215	E A 280	A	A	
17	A	225	B	E A 285	A	A	250	210	200	B	200	225	H 240	B	E A 240	220	205	B	B	B	B	215	250	250	
18	E A 280	A	E A 255	A	245	B	A	A	A	215	200	200	205	210	B	B	E B E B 240 245	B	H 225	250	245	B	B	Y	
19	A	A	A	A	A	A	A	B	B	240	230	205	205	205	205	200	215	215	215	230	240	260	260	300	
20	A	A	220	Y E A 250	B	A	Y	H 215	200	210	185	225	200	220	205	205	210	215	E A E A 245 245	270	A	A	A	A	
21	A	A	A	A	B	A	245	A	220	205	200	200	200	205	200	285	B	200	B	E B E B 240 240	250	245	240	240	
22	E A 295	A	A	B	A	A	240	215	200	200	230	205	205	A	B	215	215	H 205	250	205	230	220	235	245	245
23	250	250	E A 270	A	A	A	245	210	205	215	B	220	215	B	B	B	E A E A 255 260	250	240	240	275	B	B	A	
24	A	A	A	A	A	A	230	200	210	205	205	200	250	200	200	205	200	205	240	230	230	250	225	270	
25	250	A	A	A	A	A	205	200	205	210	210	205	240	230	270	A	A	E A 260	210	200	A	A	A	A	
26	E A 250	250	A	A	A	A	A	H 190	200	B E A E A 320 250	190	240	230	E A E B 190	A	B	B	B	B	A	A	A	A	285	
27	A	230	240	225	220	A	215	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	8	8	6	4	6	2	9	10	10	15	13	16	17	13	15	14	16	17	18	20	14	13	14	13	
MED	246	235	248	221	E A 248	245	240	210	208	205	205	200	205	205	210	202	212	208	222	231	240	250	246	242	
U Q	E A 272	250	E A 270	258	E A 275		248	250	215	215	222	205	230	225	230	225	232	E 250	240	248	250	265	250	275	
L Q	248	228	220	212	245		222	200	205	200	200	200	200	200	200	200	205	200	215	230	230	242	245	240	

IONOSPHERIC DATA STATION SHOWA-ST.

MAR. 1995 f_{XI} (0.1MHz)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C						
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	O	X	A	A	A					
3	A	O	X	A	A	B	B	B	O	X	X	X	X	X	X	X	X	O	X	X	X	X	X	X	A					
4	S	A	S	S	S	B	S	X	O	X	X	X	X	X	X	X	X	X	X	B	B	A	O	X	A					
5	A	A	B	S			S	A	A	A	B	O	X	X	B	O	X	O	X	X	X	Y	O	X	A					
6	O	X	S	X	O	X	Y	X	Y		O	X	O	X	S	O	X	O	X	X	X	X	X	X	X					
7	O	X	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	X	X	X					
8	X	X	32	32	41	36	A	44	59	64	59	O	X	X	X	X	X	X	X	X	X	X	O	X	X					
9	O	X	O	X	S	O	X	S	O	X	O	X	B	B	O	X	O	X	O	X	X	S	X	O	X	X				
10	B	B	A	B	S	B	B	B	B	B	B	B	B	B	B	B	O	X	X	S	O	X	O	X	X					
11	O	X	A	A	A	B	B	B	Y	B	B	B	B	B	B	B	O	X	O	X	X	Y	S	A	A	A				
12	A	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	O	X	X	V	S	Y	S	A					
13	A	B	B	Y	B	B	Y	B	B	B	B	B	B	B	B	B	B	O	X	C	O	X	A	A	Y	O	X			
14	A	A	Y	Y	S	B	B	B	B	B	B	B	B	B	B	B	O	X	B	B	O	X	O	X	S	A	A			
15	A	A	A	B	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	O	X	B	B	O	X	O	X	A			
16	A	O	X	A	B	A	A	B	B	B	B	B	S	O	X	B	B	B	B	B	O	X		A	A	A				
17	A	A	S	A	A	A	S	A	O	X	O	X	O	X	X	X	X	O	X	O	X	O	X	V	S	A	A			
18	A	A	A	39	A	A	O	X	43	43	49	50	47	57	59	56	55	52	47	44	35									
19	A	A	A	A	O	X	O	X	O	X	O	X	X	X	X	X	X	X	X	X	X	X	O	X	O	X	X			
20	A	A	A	A	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	O	X	O	X	X	A	A				
21	A	A	A	A	S	O	X	39	34	42	46	47	44																	
22	S	A	A	S	Y	S	O	X	O	X	C	X	X	X	O	X	O	X	X	X	X	X	X	X	S					
23	S	S	S	S	O	X	S	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S	A	A	O	X		
24	X	A	S	O	X	O	X	A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	S			
25	A	A	O	X	A	A	A	O	X	B	O	X	O	X	X	X	X	X	X	O	X	O	X	B	B					
26	A	A	A	A	A	A	39	42	49	56		63	71	80	80	90	70	X	Y	Y	Y	A	S	A	S					
27	A	B	O	X	A	B	A	Y	O	X	X	O	X	O	X	O	X	B	B	C	X	B	B	O	X	X	C	A	C	A
28	A	A	A	C	C	C	A	C	A	A	C	C	O	X	C	O	X	C	C	C	C	Y	A	A	A	A	A			
29	A	A	A	B	A	C	C	C	C	B	C	C	B	C	C	B	B	B	Y	B	R	A	A	A	A	A				
30	A	A	B	B	B	B	A	B	B	B	B	O	X	X	X	X	X	X	X	S	S									
31	O	X	A	S	A	A	A		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	7	5	5	6	8	8	9	18	15	17	17	18	19	19	19	23	20	21	22	21	18	16	10	9						
MED	O	X	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	40			
UQ	49	45	50	39	40	42	44	48	51	55	58	63	62	66	68	66	62	58	51	47	44	41	46	46						
LQ	X	X			O	X	X	X	X	O	X	O	X	O	X	O	X	X	O	X	X	X	X	X	O	X	X			
	42	36	36	33	36	34	34	43	46	48	50	50	50	57	59	53	54	48	46	43	34	30	29	32						

IONOSPHERIC DATA STATION SHOWA-ST.

MAR. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	30	A	A	A	A
3	A	R	A	A	B	B	B	R			U	R	U	R	U	R	S	R					F	A
4	S	A	S	S	S	B	S		42	53	47	51	51	49	52	53	55	49	46		B	B	A	A
5	A	A	B	S	F	F	D	S	F	A	A	A	B	U	R	R	B	U	R		Y	S	U	S
6	U	S	J	R	U	S	F	Y		42	46		Y	F	F	F	D	S	U	S		U	R	F
7	J	F	S	S	S	J	S	S		36	37	38	44	42	46	45	43	42	41	41	40	37	41	41
8	J	S	S	F	F	F	F	A	F	F	F	R		J	S			J	S			J	F	J
9	S	S	D	S	U	S	S	D	U	S	S	B	U	R		R	U	R	D	S	U	S	R	B
10	B	B	A	B	S	B	B	B	B	B	B	B	B	B	B	B	U	R	D	S	R	R	B	Y
11	R	A	A	A	B	B	B	Y	B	B	B	B	B	B	B	B	U	R			Y	S	A	A
12	A	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			V	S	Y	S
13	A	B	B	Y	B	B	Y	B	B	B	B	B	B	B	B	B	B	B	42	39	37			
14	A	A	Y	Y	S	B	B	B	B	B	B	B	B	B	B	B	B	B	33	C	R	A	A	Y
15	A	A	A	B	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	37	37	22			
16	A	R	A	B	A	A	B	B	B	B	B	B	D	S	R	B	B	B	B	B	R	A	A	A
17	A	A	S	A	A	A	S	A	R	R	R		J	R	R	U	R	U	R	R	34	19		
18	A	A	A	F	A	A	F	S	42	42	44	47	52	54	55	53	49	46	41	38	29			
19	A	A	A	A	R	R	F	J	R	R	R		J	R				J	R		V	F	S	S
20	A	A	A	A	27	28	38	42	40	46	51	53	51	60	57	57	54	49	43	38	32	27	S	U
21	A	A	A	A	29	29	39	39	45	46	50	58	56	58	61	60	59	59	52	42	37	20	F	A
22	S	A	A	D	S	Y	D	S	F	F	R	O	X	D	S	D	S				F	U	S	F
23	S	S	S	S	34	31	23	42	43	57	61	66	69	73	69	67	U	R		D	S	A	A	R
24	J	A	D	S	S	U	S	F	A	48	56	49	51	57	56	58	57	55	53	50	45	38	33	26
25	A	A	R	A	A	A	A	A	R	B	R	R	F	F	F	F	F	F	F	F	F	F	F	F
26	A	A	A	A	A	A	F	30	36	43	50		Y	57	55	70	60	76	64	Y	Y	Y	A	S
27	A	B	U	S	A	B	A	Y	S	30	36	43	44	34		B	B	C		B	U	R	J	C
28	A	A	A	C	C	C	A	C	A	A	A	C	C	R	C	R	C	C	C	C	Y	A	A	A
29	A	A	A	B	A	C	C	C	C	C	B	C	C	B	C	C	B	B	B	Y	B	R	A	A
30	A	A	B	B	B	B	A	B	B	B	R	39	41	47	51	54	59	59	54	S	S	F	F	A
31	S	A	S	A	A	A	A	F	36	41	43	45	59	59	63	74	J	S		F	27	27	24	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	5	7	7	7	10	11	18	15	17	17	19	21	20	19	23	21	22	22	21	19	16	9	10
MED	S	S	S	S	30	30	32	38	42	46	48	52	51	56	57	54	52	46	42	38	32	26	24	34
UQ	43	39	38	35	31	33	38	42	45	48	51	57	56	59	60	60	56	53	45	41	38	34	40	40
LQ	S	30	27	27	R	F	F	F	40	42	44	44	42	51	53	47	47	42	40	36	27	23	22	21

IONOSPHERIC DATA STATION SHOWA-ST.

MAR. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	CE	B							
3	39	32	46	39			BE	SE	SE	S	E	SE	SE	SE	S	E	SE	SE	SE	SE	SE	SE	SE	S			
4	37	45	24	38	36		B	27	27	24	25	30	26	31	30	26	E	S		B	B		70	58	115	51	
5	68	70		41	38	70	34	37	43	40	46		BE	SE	S	B	SE	S				38	20	28	51		
6	69	46	48	37	33	32	32	32	32	33	27	31	27	31	29	27	24	22	E	S			12	9	24		
7	12	11	21	12	14	14	E	SE	SE	S	E	B							E	SE	SE	SE	BE	B	E	S	
8	E	S		40	23	26	70	31	45	45	33	25	24	26	24	32	27	27	26	22	19	16	14	E	SE	SE	S
9	E	S		19	16	13	16	22	24	24	24			26	28	31	29	27	25	24	24	24	24		46	39	
10	B	B		46		41	B	B	B	B	B	B	B	B	B	B		E	SE	S		B	B		30	30	41
11	52	57	57	52			B	B	B		35						BE	B									50
12	60	32		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	46
13	70		B	B		B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	41
14	44	43	35	34	41		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	37
15	38	71	41		26																						36
16	32	46	41		B	56	46																				41
17	41	40	32	41	43	42	37	58	27	37	27	30	29	30	29	30	30	24	23	19	11	28	34	36		36	
18	46	101	54	51	42	42	32	E	SE	SE	S	E	SE	B													29
19	27	31	37	41	41	28	41	E	SE	SE	S	E	SE	S	E	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	37
20	46	51	57	47	40	41	39	21	19	22	23	24	32	38	32	24	21	E	BE	BE	B		16	31	35	39	
21	39	38	41	39	34	32	23	28	22	26	30	29	31	27	30	27	27	30	16	14	30	17	27	26		26	
22	22	29	31	30	30	24	51	E	C		CE	C															S
23	S	31	34	30	28	30	29	17	18	27	26	27	33	38	31	33	24	26	41	45	41	51	53	37		37	
24	46	67	65	38	49	52	58	32	27	27	27	40	43	39	36	29	28	18	13	12	E	BE	BE	SE	S	13	
25	36	59	45	58	70	49	58	41	B		28	27	31	34	28	26	24	22	17	24	20	17	32			B	
26	29	30	32	46	46	51	26	20	20	21	24	26	30	E	SE	SE	SE	S									37
27	43		B	32	80		B	39	28	24	22	21	22	30		B	B	C									57
28	57	70	77		C	C		50	37	41	44		C	CE	S	CE	B		C	C	C						43
29	37	38	33		B	37	C	C	C	C	B	C	C														39
30	68	42	B	B	B	B		46				BE	S	E	S												30
31	32	41	28	71	47	58	49	37	22	23	23	27	26	22	21	24	27	23	39	18	13	11	12			B	
CNT	27	26	25	22	22	18	21	21	18	19	19	19	21	20	19	23	21	23	24	25	27	29	29	27			27
MED	39	42	37	39	40	40	37	28	24	24	26	26	28	30	27	27	25	23	24	U	20	24	31	34	37		
UQ	52	57	47	47	46	49	48	37	27	28	27	30	32	32	30	29	28	26	32	31	39	38	43	43			
LQ	32	32	32	34	33	30	28	20	22	23	24	26	26	28	26	25	23	22	21	18	E	E	E	S			30

IONOSPHERIC DATA STATION SHOWA-ST.

MAR. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C									
3	10	19	19	20	B	B	B		E S								E S	E S	E S	E S	25	11	13	11	11			
4	10	19	15	20	19	B	19	19	19	19	19	28	19	20	19	19	E S	24	B	B		19	10	16	13			
5	22	13	B	24	13	20	14	19	20	24	31	B	38	30	B	30	30	24	16	14	13	13	10	13				
6	16	11	9	13	7	23	15	19	E S							E S	24	14	E S	20	13	9	9	7	7			
7	8	7	8	8	9	10	E S	E S	E S	E S							14	16	E S	E S				E S	11			
8	E S	11	9	8	10	9	11	20	19	16	18	19	19	22	14	13	14	14	13	15	13	12	E S	E S	E S			
9	E S	8	9	16	10	12	E S	E S	E S	E S	B	B	E S	E S			25	24	E S	E S	E S	E S	B	24	19			
10	B	B	24	B	27	B	B	B	B	B	B	B	B	B	B	B	24	E S	E S	E S		B	B	12	19	20		
11	18	19	27	24	B	B	B		B	B	B	B	B	B	B	B	27	24	23	E S	23	25	7	19	40	26		
12	19	24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	29	E S	22	14	7	10	10	16		
13	30	B	B	15	B	B	23	B	B	B	B	B	B	B	B	B	B	B	22	C	E C	23	13	19	19	9		
14	19	14	14	29	24	B	B	B	B	B	B	B	B	B	B	30	B	B	E S	E S	E S	E S	12	9	23			
15	14	10	24	B	23	B	B	B	B	B	B	B	B	B	B	B	B	B	E S	25			21	12	10			
16	9	13	22	B	23	17	B	B	B	B	B	B	31	30	B	B	B	B	B			29	13	14	9	18		
17	17	24	20	22	23	19	20	15	19	23	23	30	29	30	29	30	30	E S	E S	E S	E S	E S	9	10	9			
18	14	19	19	20	19	15	13	E S	E S	E S	E S	23	21	27	30	19	22	E S	19	22	13	13	13	E S	13			
19	8	9	9	13	13	13	20	E S	E S	E S	E S	27	28	27	17	29	27	E S	E S	E S	E S	E S	10	13	13	13		
20	13	9	15	18	14	9	13	13	15	13	14	16	18	19	18	18	20	20	31	25	14	13	13	13	13			
21	13	11	13	10	12	11	11	14	20	26	30	29	31	24	19	15	19	13	13	9	9	11	9	9	9			
22	7	19	10	8	18	18	26	24	C	25	23	25	23	E S	E S	E S	19	E S	E S	E S	E S	E S	E S	E S	E S	S		
23	S	19	13	13	23	9	10	13	13	13	14	18	18	19	14	18	E S	24	14	9	9	14	14	18	13			
24	13	19	15	13	13	8	13	13	13	10	13	13	14	14	13	13	10	14	10	8	11	13	E S	E S	E S	13		
25	9	14	17	13	17	14	14	19	B	25	19	19	23	19	19	24	E S	22	15	24	17	E S	17	15	B	B		
26	10	10	11	15	14	18	18	14	14	14	14	19	24	E S	E S	E S	E S	20	20	14	15	10	13	20	13			
27	8	B	18	19	B	23	19	13	13	18	18	30	B	B	C	24	B	B			32	11	10	9	13	11		
28	14	19	41	C	C	C	29	23	35	23	C	C	E S	C	C	C	C	C	C									
29	20	23	9	B	31	C	C	C	C	B	C	C	B	C	C	B	B	B			30	B	17	9	9	11		
30	19	18	B	B	B	B	22	B	B	B	E S	24	24	E S	26	19	19	20	E S	E S	E S	S	S	14	10	10	23	B
31	9	13	20	24	20	19	13	16	17	14	20	19	19	19	19	24	16	23	13	18	13	11	10	10	10	10		
CNT	28	29	29	28	28	27	28	28	27	29	27	27	29	27	27	28	29	28	26	29	30	30	30	30	29			
MED	13	18	17	20	20	19	20	19	24	24	24	27	28	29	26	24	24	22	U	20	16	12	13	12	13			
U Q	18	19	24	26	B	B	B	B	B	B	B	B	B	B	B	B	30	B	B	28	24	25	14	14	16	19		
L Q	9	10	12	13	13	13	14	16	17	17	19	19	19	19	19	20	20	16	15	14	10	10	10	10	10			

IONOSPHERIC DATA STATION SHOWA-ST.

MAR. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C														
2		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	E	B	A	A	A													
3		A	A	A	A	B	B	B	B	B	S	245	225	190	230	210	205	215	210	220	220	S	215	230	230	240	280	S	E	S	S	A							
4		A	A	S	A	A	B	A	A	A	A	250	200	200	235	230	255	240	210	210	205	H	B	B	A	A	A	A	A	A	A								
5		A	A	B	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	S	S	A	A	A	A	A	A	A	A	205								
6		A	A	E	A	E	A	A	A	A	A	A	A	A	240	200	205	200	220	235	220	230	215	205	230	240	230	235	240	245	E	A							
7		E	A	E	A	E	A	E	A	S	S	250	260	285	310	325	295	250	225	215	200	205	200	205	200	205	200	190	250	215	205	230	225	225	245	245	250		
8		S	E	A	A	A	A	A	A	A	A	250	270	A	A	A	A	A	A	245	205	205	205	200	200	195	205	215	230	220	220	215	245	230	250	S	E	S	S
9		E	S	E	A	E	S	S	S	S	S	250	250	270	A	A	A	A	A	A	A	A	A	240	240	A	A	B	B	A	A	A	A	A	A	A	A		
10		B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	A	S	S	240	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A			
11		E	A	A	A	A	B	B	B	Y	B	B	B	B	B	B	B	B	B	B	B	240	230	240	A	A	A	A	A	A	A	A	A	A	A	A	A		
12		A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
13		A	B	B	Y	B	B	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	A	C	C	A	A	A	Y	235	A	A	A	A	A	A	A	A		
14		A	A	A	Y	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
15		A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
16		A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
17		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
18		A	A	A	E	S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
19		A	A	A	A	A	A	A	S	E	S	S	S	S	S	B	B	250	235	215	215	215	210	200	205	215	210	205	230	240	240	270	255	240	240	240	240	S	
20		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
21		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
22		A	A	A	A	Y	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
23		S	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
24		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
25		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
26		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
27		A	B	A	A	B	A	S	A	E	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
28		A	A	A	C	C	C	A	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
29		A	A	A	B	A	C	C	C	C	B	C	C	C	B	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30		A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
31		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
00		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
CNT		7	4	6	5	3	3	2	10	14	15	18	19	21	20	19	22	19	20	20	20	20	20	20	20	16	12	9	8	E	S	U	S	U	S	U	8		
MED		250	255	258	260	222	270	260	SU	221	236	218	220	215	215	216	208	218	215	220	218	224	227	238	255	231	E	S	U	S	U	S	U	S	U	S	U		
UQ		250	265	270	305	325	320	E	S	250	245	240	235	235	230	232	225	245	E	E	230	230	242	250	240	250	270	250	E	S	E	S	E	S	E	S	E		
LQ		240	240	240	248	200	245	220	H	230	200	205	200	208	205	200	210	215	215	215	220	228	238	235	238	235	238	235	238	235	238	235	238	235	238	235	238		

IONOSPHERIC DATA STATION SHOWA-ST.

APR. 1995 fxI (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	A	A	O X 40	A	O X 34	O X 39	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B	A	A		
2	A	A	A	A	A	A	B	B	B	A	B	B	B	B	A	69	69	48	B	S	A	S	S	C		
3	C	C	C	C	C	C	C	C	O	X	O	X	O	X	X	X	X	X	O	X	V	O	X	S	A	
4	B	A	B	Y	Y	B	O X 45	34	37	46	47	X	X	B	B	B	O X	O X	O X	B	B	O X	O X	B	A	
5	B	S	S	A	A	A	A	A	O	X	X	X	X	X	X	X	68	60	48	O	X	O	X	B	A	
6	A	A	A	A	A	O X 39	A	A	Y	V	X	X	X	X	X	X	X	X	X	O	X	O	X	B	A	
7	A	A	A	A	53	A	A	B	A	B	B	S	B	B	B	B	O X	40	A	F	S	B	S	A	A	
8	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	S	A	A	A	A		
9	A	B	41	B	B	B	B	B	B	Y	B	B	B	B	B	B	B	B	33	B	Y	O X	A	A		
10	A	S	A	A	B	B	B	B	B	B	B	B	B	B	B	C	C	C	S	Y	B	A	A	Y		
11	A	B	A	S	A	Y	O X 38	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	
12	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	O X	41	B	B	B	Y	B	A	A	A	
13	A	A	A	A	A	A	B	B	Y	B	B	B	B	O X	O X	X	O X	X	X	X	O X	O X	B	B	B	
14	A	A	A	B	A	A	A	S	B	O X	O X	O X	X	X	X	X	X	X	X	X	X	B	B	B	Y	
15	O X 39	A	S	A	A	O X 24	A	A	X	44	47	50	52	53	49	57	49	46	36	26	O X	O X	B	Y	Y	B
16	Y	S	S	B	A	O X 48	B	A	B	O X	X	X	69	85	74	71	59	48	36	26	O X	O X	B	B	B	B
17	A	32	O X 44	A	A	O X 35	X	X	X	X	X	X	69	60	61	64	59	49	38	37	B	B	B	B	B	
18	O X 29	O X 27	A	A	A	A	O X 38	X	X	X	X	X	O X	O X	60	58	58	47	41	30	O X	S	A	A	A	
19	A	A	Y	A	A	A	B	A	37	45	X	B	B	O X	57	60	58	47	41	30	O X	O X	A	B	B	
20	A	A	A	O X 33	31	27	A	A	B	B	O X	O X	O X	X	X	X	X	X	O X	O X	B	B	B	A	A	
21	A	A	A	A	Y	Y	B	B	B	O X	O X	X	X	59	60	72	58	39	S	O X	O X	B	B	B	B	
22	B	B	A	Y	Y	B	A	O X 53	53	50	54	66	70	77	76	76	68	59	55	43	A	A	A	A	A	
23	A	A	S	Y	B	B	B	Y	Y	B	Y	Y	B	B	B	B	B	O X	B	A	A	A	A	A	A	
24	A	S	A	B	B	A	B	Y	B	A	B	B	B	B	B	B	B	O X	O X	B	B	A	A	A	A	
25	O X 44	O X 50	A	B	B	B	A	B	B	B	B	B	B	B	O X	O X	44	43	B	B	B	B	B	A	A	
26	A	A	A	A	B	A	Y	B	B	B	O X	B	B	B	O X	B	O X	O X	40	43	36	28	A	B	A	A
27	O X 43	F	A	A	A	A	A	A	A	B	B	B	B	B	B	B	48	B	B	B	Y	Y	A	A	A	
28	A	S	A	A	B	A	B	A	B	B	B	B	B	B	B	B	48	B	B	B	S	B	Y	S	S	
29	O X 33	A	A	A	A	A	S	A	B	O X	O X	O X	O X	O X	O X	O X	X	O X	X	40	31	B	B	B	A	A
30	O X 48	Y	Y	A	A	Y	B	O X 23	29	39	45	52	56	56	56	52	44	27	33	26	O X	B	B	S	S	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	6	3	2	2	2	5	5	6	8	15	16	14	15	16	18	20	22	21	18	15	9	5				
MED	O X 41	O X 32	O X 42	O X 36	O X 42	O X 34	O X 38	X 36	37	46	49	55	58	58	58	61	54	48	36	30	O X 26	O X 23				
U Q	O X 44	O X 50			O X 44	O X 42	X 40	X 40	45	49	53	60	69	62	61	68	59	51	42	37	O X 32	O X 28				
L Q	O X 33	O X 27				X 26	X 36	X 34	X 36	X 44	X 47	X 50	X 52	X 54	X 54	X 50	X 47	X 42	X 33	X 26	O X 22	O X 20				

IONOSPHERIC DATA STATION SHOWA-ST.

APR. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	A	AUR	34	AUR	28	33	33	43	43	46	47	JR	52	57	62	56	48	44	41	JF	33	22	B	A	A
2	A	A	A	A	A	A	B	B	B	A	B	B	B	B	A	F	57	59	33	BD	S	A	S	S	C	
3	C	C	C	C	C	C	C	C	C	R	R	R	R						V		V	F	R	S	A	
4	B	A	B	Y	Y	BU	R	F	F		R	B	B	B	BU	RU	R	R	B	B	R	R	B	B	A	
5	B	S	S	A	A	A	A	A	A				JR	52	52	60	55	51	51		R	B	B	B	A	
6	A	A	A	A	AUR	33	A	A	Y	V			JR	JR	JR		51	44	34	27	R	S	B	B	A	
7	A	A	A	A	F	41	A	B	A	B	B	S	B	B	B	B	B	R	A	F	S	B	S	A	A	
8	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	S	A	A	A	A	
9	A	B	F	B	B	B	B	B	B	Y	B	B	B	B	B	B	B	B	F	B	Y		28	A	A	
10	AD	S	A	A	B	B	B	B	B	B	B	B	B	B	B	C	C	C	S	Y	B	A	A	Y		
11	A	B	A	S	A	YUR		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	
12	BD	S	B	B	B	B	B	B	B	B	B	B	B	B	B		35				Y	B	A	A	A	
13	A	A	A	A	A	A	B	B	Y	B	B	B	BU	RU	R				JR	JR	F	F	B	B	B	
14	A	A	A	B	A	A	A	S	B		RU	J	S	J	R	43	51	43	40	29	F	20	B	B	Y	
15	UR	A	S	A	AUR	18	A	A	JR	F	JR	F	F	F	F		50	46	27	22	R	R	B	Y	Y	
16	Y	S	S	B	A	R	B	A	B				F	F	V	F			F	R	R	B	B	B	B	
17	A	F	R	A	A	A	R						F	F	F		53	39	30	20	F	F	B	B	B	
18	S	R	A	A	A	A	J	S	S	F	J	R	F		R	F	J	R	J	F	F	J	F	R	D	
19	A	A	Y	A	A	A	B	A	J	F	B	B	J	R	R		48	44	40	28	F	S	B	B	B	
20	A	A	A	R	F	F	A	A	B	B	R		R			F	44	47	31	27	S	B	B	B	A	
21	A	A	A	A	Y	Y	B	B	B	R	J	R	R	R	F	F	F	F	D	S	R	R	B	B	B	
22	B	B	A	Y	Y	B	AUR	F									62	53	49	34	F	A	A	A	A	
23	A	AD	S	Y	B	B	B	Y	Y	B	Y	Y	B	B	B	B	B	R	B	A		A	A	A	A	
24	AD	S	A	B	B	A	B	Y	B	A	B	B	B	B	B	B	B	R	R	B	B	B	A	A	A	
25	UR	UR	A	B	B	B	A	B	B	B	B	B	B	BU	RU	R					B	B	B	A	A	
26	A	A	A	A	B	A	Y	B	B	B	R	B	B	B	R	B	34	37	28	21	F	F	A	B	A	
27	US	F	A	A	A	A	A	A	A	B	B	B	B	B	B	B					B	Y	Y	A	A	
28	A	S	A	A	B	A	B	A	B	B	B	B	B	B	B	B					B	S	B	Y	S	
29	R	A	A	A	A	AD	S	A	B	R			R	R			37	34	25		B	B	B	A	A	
30	UR	Y	Y	A	A	Y	B	R			J	R	J	R			38	20	23	17	F	R	B	B	S	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	6	6	3	2	2	5	6	6	8	15	16	14	15	16	18	20	22	21	19	16	9	6				
MED	UR	34	38	R	FUR																					
UQ	UR	37	38			UR															F	S				
LQ	27	26	35			20	29	24	28	38	41	44	46	48	48	44	41	34	27	20	F	R	16			

IONOSPHERIC DATA STATION SHOWA-ST.

APR. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	31	76	41	38	32	14	E	B	E	B	E	B	16	20	22	22	27	37	E	B	E	B	E	B	27		46	90				
2	47	41	41	70	41	51	B	B	B		47		B	B		E	B	E	B		B	43	41	36	30			C				
3	C	C	C	C	C	C	C	C	C		E	B	E	B	26	34	31	26	41	28	31	21	19	17	18	26	17	15	34			
4	B	43		12	16		B	44	16	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B	10		27			
5	B	31	29	46	44	47	51	52	52	37	26	34	28	22	E	B	E	B	E	B	E	B	E	B	E	B			44			
6	70	59	55	48	41	40	48	52	38	32	26	21	21	22	20	E	B	E	B	E	B	E	B	E	B	E	B		36			
7	46	70	42	51	43	36	40		B		B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	39	80	41			
8	44	35	42			27		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	32	41	41	42	51		
9	41		37		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	26	33	37	38			
10	38	70	40	41		B	B	B	B	B	B	B	B	B	B	C	C	C				33	18		B	42	43	35				
11	70		38	32	38	26	18		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		22	71	37			
12	B	88		B	B	B	B	B	B	B	B	B	B	B	B	E	B	E	B	E	B	E	B	E	B		38	38	44	32		
13	32	40	42	44	41	41			23						31	29	23	25	21	19	14	11		B	B	B	B	B				
14	34	80	41		42	47	36	27		22	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B				15		
15	42	42	31	46	27	27	31	44	35	E	B	23	24	23	21	26	26	21	20	23	24	15		B	12	20		B				
16	18	23	21		41	26		38		E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B		B	B	B	B		
17	41	39	32	42	71	58	39	38	22	19	E	B	25	22	22	26	20	E	B	26	13	18	11		B	B	B	B				
18	20	22	26	27	29	32	21	23		E	B	11	17	19	21	24	23	23	23	15	14	12	12	13	10	34	34		B			
19	47	32	22	58	70	40		37	37	E	B	25			41	34	24	23	18	13	14	13	11	11	26				B			
20	31	37	41	36	26	28	41	46		B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B		B	B	B	34	
21	40	39	32	41	26	27		B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B		B	B	B		
22	B	B		28	23	28		37	39	13	16	21	21	26	22	22	22	E	B	16	12	32	38	47	48	51	50					
23	49	70	47	26		B	B	B		48	47		26	34		B	B	B	B	B	B	B	B	B	B	41	41	46	59	60		
24	43	46	91		B	B	37	29		62										19	17			B	B	39	92	45				
25	42	46	69		B	B		41		B	B	B	B	B	B	E	B	E	B	E	B	E	B	E	B		B	B		46	70	
26	45	48	70	46		36	27		B	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B		B			39	47
27	47	60	74	44	37	104	60	52	39		B	B	B	B	B	B	B	E	B	24		B	B	B		23	20	42	48			
28	37	31	56	41		37		41		B	B	B	B	B	B	B	B	E	B	19		B	B	B		25		16	26			
29	34	42	37	38	41	52	35	36		E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B		B	B		32	36	
30	43	38	35	42	40	28	E	B	14	14	16	20	21	24	22	20	17	26	17	12	11	10								26		
31																																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	25	26	27	22	20	22	16	18	14	18	17	16	15	16	19	20	22	22	21	21	17	16	20	23								
MED	42	42	41	42	40	36	38	38	29	22	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	25	34	42	37		
UQ	46	60	47	46	42	47	42	46	39	32	E	B	26	29	31	24	25	23	24	29	35	40	48	48								
LQ	34	37	32	36	28	27	29	E	B	19	19	20	22	22	22	22	E	B	17	15	13	13	14	31	34							

IONOSPHERIC DATA STATION SHOWA-ST.

APR. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	9	19	22	13	13	11	18	17	19	13	13	18	18	17	19	22	20	19	10	13	9	B	16	11	
2	11	23	9	18	9	23	B	B	B	25	B	B	B	B	30	30	21	22	B	18	11	9	13	C	
3	C	C	C	C	C	C	C	C	C	24	34	31	24	24	21	22	21	19	14	11	9	9	13	21	
4	B	9	B	8	7	B	20	13	23	21	30	B	B	B	B	34	32	30	B	B	16	9	B	15	
5	B	10	8	19	20	19	18	19	19	24	18	23	19	19	31	24	20	24	14	B	B	B	B	15	
6	10	14	13	19	21	15	19	19	17	19	18	18	16	18	14	22	21	14	14	14	14	B	B	8	
7	7	24	24	25	20	23	19	B	30	B	B	31	B	B	B	B	21	15	7	7	B	14	22	19	
8	19	18	10	B	B	21	B	B	B	B	B	B	B	B	B	B	B	B	B	14	13	10	24	31	
9	21	B	13	B	B	B	B	B	B	20	B	B	B	B	B	C	C	C	21	B	13	14	11	9	
10	9	36	21	25	B	B	B	B	B	B	B	B	B	B	B	C	C	C	14	14	B	10	13	21	
11	13	B	13	21	16	14	8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	11	20	19	
12	B	13	B	B	B	B	B	B	B	B	B	B	B	B	B	30	B	B	B	14	B	9	10	13	
13	13	24	25	20	21	24	B	B	13	B	B	B	B	31	29	23	25	21	19	14	11	B	B	B	
14	14	14	24	B	30	22	22	12	B	12	25	29	25	24	24	23	20	18	13	13	B	B	B	8	
15	14	19	20	19	16	13	13	11	19	23	17	19	18	19	17	21	20	23	24	15	B	8	18	B	
16	10	12	16	B	21	11	B	18	B	32	31	33	25	25	23	18	21	23	14	17	B	B	B	B	
17	14	9	10	10	17	15	14	12	13	17	25	21	18	18	18	20	16	13	18	11	B	B	B	B	
18	12	9	9	7	9	8	9	23	10	7	17	21	24	23	23	23	13	14	12	12	13	10	8	11	
19	13	14	18	18	18	19	B	23	13	25	B	B	41	34	24	23	18	13	14	13	9	9	9	B	
20	18	24	13	13	11	13	17	36	B	B	34	29	23	23	23	20	14	17	20	19	B	B	B	10	
21	13	14	13	14	9	18	B	B	B	23	19	24	21	16	18	19	17	20	16	13	13	B	B	B	
22	B	B	9	8	14	B	31	10	10	15	17	17	17	17	19	22	15	9	32	10	16	13	11	9	
23	13	13	15	18	B	B	B	23	19	B	24	24	B	B	B	B	B	23	B	13	10	9	11	10	
24	9	13	44	B	B	34	B	23	B	36	B	B	B	B	B	B	B	19	17	B	B	10	13	14	
25	11	11	18	B	B	B	30	B	B	B	B	B	B	B	B	31	23	B	B	B	B	B	9	21	
26	13	11	13	19	24	20	B	B	B	B	27	B	B	B	B	B	19	23	23	14	11	B	9	14	
27	13	11	11	15	9	19	19	20	24	B	B	B	B	B	B	B	24	B	B	B	19	9	7	20	
28	10	20	24	30	B	24	B	19	B	B	B	B	B	B	B	B	19	B	B	B	18	B	14	14	
29	9	9	14	30	20	14	13	13	B	23	23	24	29	34	31	24	13	9	18	B	B	B	9	9	
30	14	20	19	19	15	14	B	14	11	13	20	21	24	22	20	13	10	13	8	11	8	B	B	9	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	29	29	28	29	29	29	29	30	30	30	30	30	29	29	29	29	30	30	30	30	30	29	
MED	13	14	15	19	20	21	30	23	B	25	32	32	B	34	30	23	21	21	18	14	17	14	15	15	
U Q	16	24	23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	26	
L Q	10	11	12	14	14	14	18	16	18	20	20	23	23	22	20	22	18	14	14	13	11	9	11	10	

IONOSPHERIC DATA STATION SHOWA-ST.

APR. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
1		A	A	A	215	A	S	345	270	230	240	220	210	220	220	225	210	200	200	205	215	245	A	B	A	A											
2		A	A	A	A	A	A	B	B	B	A	B	B	B	B	A	B	E	B	A	B	A	A	A	A	C											
3		C	C	C	C	C	C	C	C	C	E	A	B	E	B	E	A	255	280	250	270	230	205	215	210	230	230	245	290	245	A	A	A	A			
4		B	A	B	Y	Y	B	A	E	A	B	E	B	B	B	B	B	245	235	215	B	B	B	B	B	B	B	250	A	B	B	A	A				
5		B	A	A	A	A	A	A	A	A	A	A	A	A	A	E	B	E	B	E	B	B	B	B	B	B	B	B	B	B	B	B	A	A			
6		A	A	A	A	A	230	A	A	A	E	A	250	225	215	200	205	210	205	215	215	215	220	E	B	B	B	B	A	A	A	A	A				
7		A	A	A	A	240	A	A	B	A	B	B	A	B	B	B	B	B	B	A	A	S	B	A	A	A	A	A	A	A	A	A	A	A			
8		A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	A	A	A	A	A			
9		A	B	230	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	Y	225	A	A	A	A	A	A	A	A	A	A			
10		A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	C	C	C	A	Y	B	A	A	A	A	A	A	A	A	A	A	A	A			
11		A	B	A	A	A	A	230	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
12		B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	A	A	A	A	A	A	A	A	A		
13		A	A	A	A	A	A	B	B	A	B	B	B	B	E	B	270	205	225	230	225	230	230	E	B	B	B	B	B	B	B	B	B	B	B		
14		A	A	A	B	A	A	A	A	B	E	A	B	E	B	E	S	250	245	255	240	235	220	235	215	215	225	240	B	B	B	Y	B	B	Y		
15		A	A	A	A	A	A	A	A	A	A	B	240	230	230	230	225	215	200	205	B	E	B	B	Y	Y	B	B	B	B	B	B	B	B	B		
16		Y	A	S	B	A	A	B	A	B	E	B	E	B	E	B	B	250	250	260	235	215	205	205	200	200	225	250	B	B	B	B	B	B	B		
17		A	A	A	A	A	A	A	A	S	245	250	215	200	210	220	230	205	200	215	215	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
18		A	A	A	A	E	B	A	A	B	255	235	200	220	205	220	215	205	210	205	200	205	E	B	E	B	B	A	A	A	A	A	A	A	A	A	
19		A	A	A	A	A	A	B	A	A	E	B	B	B	E	B	E	B	B	170	250	250	235	215	210	205	215	205	240	260	E	B	A	B	B		
20		A	A	A	A	A	A	A	A	B	B	E	B	270	245	220	220	235	210	220	220	E	B	E	B	B	B	B	B	B	B	B	B	B	B	B	
21		A	A	A	A	A	A	B	B	B	B	B	B	240	235	240	205	200	210	210	205	205	E	B	E	B	E	B	B	B	B	B	B	B	B	B	
22		B	B	A	A	220	B	A	280	230	215	230	230	210	205	210	210	210	205	240	E	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
23		A	A	E	A	A	B	B	B	A	A	B	Y	Y	B	B	B	B	B	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
24		A	E	B	A	B	B	A	B	Y	B	A	B	B	B	B	B	B	B	E	B	E	B	B	B	B	A	A	A	A	A	A	A	A	A	A	
25		A	E	A	A	B	B	B	A	B	B	B	B	B	B	B	B	E	B	B	250	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26		A	A	A	A	B	A	S	B	B	B	B	B	B	B	B	245	B	E	A	E	B	A	A	B	A	A	A	A	A	A	A	A	A	A	A	
27		E	A	F	A	A	A	A	A	A	A	B	B	B	B	B	B	B	E	B	B	B	B	Y	Y	A	A	A	A	A	A	A	A	A	A	A	
28		A	A	A	A	B	A	B	A	B	B	B	B	B	B	B	B	B	B	240	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
29		220	A	A	A	A	A	A	A	B	E	B	E	B	B	E	B	280	250	235	255	250	230	210	210	205	250	B	B	B	A	A	A	A	A	A	
30		230	A	A	A	A	A	B	B	B	220	245	230	210	205	205	200	195	A	205	E	B	E	A	B	B	A	B	B	A	A	A	A	A	A	A	
31																																					
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		4	3	2	1	3	1	3	3	4	14	14	14	15	16	16	18	21	18	17	14	9	4	1													
MED		230	225	225	215	230	230	240	280	238	229	231	228	215	212	216	210	212	206	220	224	E	E	245	255	245											
U Q		A	E	B		E	B			E	E	B	E	B	E	B		E	B	B	E	B	E	B													
L Q		245	250			255		345	280	250	250	250	245	240	242	232	230	238	220	245	245	250	275														
		225	225			220		230	270	230	235	225	220	205	208	210	205	205	205	215	215	E	240	238													

APR. 1995 h'F (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

MAY 1995 f_{XI} (0.1MHz)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	Y	Y	A	Y	Y	B	B	O	X	O	X	X	X	X		A	V		O	X	O	X		B	B	B
2	B	Y	Y	Y	A	O	X	A	B	B	A	B					Y	B	A	A	A	A	A	A	A	
3	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	O	X	B	Y	A	B	A	A	A	
4	O	X	A	B	A	A	B	B	B	B	B	B	B	B	B	B	O	X	A	B	A	A	A	A	A	
5	B	A	A	S																Y	A	A	Y	A	A	
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	O	X	X	X	
7	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	S	A	B		
8	B	B	A	B	B	B	B	B	B	B	B	B	B	B	X		B	O	X	B	B	Y	B	Y	Y	
9			A	B	B	B	B	B	S	A	O	X	B	B	B	B	O	X	B	B	Y	B	B	Y	S	
10	B	A	A	A	S	A	S	B	B	B	O	X	X	X	X	X	B	B	A	B	B	B	B	B	B	
11	Y	S	O	X	A	A	A	B	B				B		O	X		B	B	B	B	B	B	B	Y	
12	A	O	X	O	Y	B	Y	Y		O	X	B	O	X	B	B	B	X	B	B	B	B	B	B	S	
13	X	X	S	A	O	X	A	O	X				B	O	X	X										
14	O	X	O	X	A	A	A	A	A	B	B	S	V	X	X	X	X	X	X	O	X	S		B	B	
15	Y	S	Y	Y	Y	A	B	A	B	O	X	46	62	59	55	56	49	44	B	B	Y	B	B	B	B	
16	B	Y	A	B	A	A	A	B	B	B	A	X	51	B	O	X	O	X	X	A	S	A	Y	A	A	
17	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	S	S	B	A	A	A		
18	A	A	A	A	Y	B	A	A	Y	O	X	O	X	X	R	O	X		B	B	B	B	B	Y	Y	
19	A	A	B	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	A	
20	B	A	B	B	B	B	B	A	A	A	B	B	B	B	S	B	B	B	B	B		O	X	A	A	
21		A	A	A	A	F	B	A	B	B	B	O	X	O	X	O	X	X	B	B	B	B	B	B	B	
22	Y		O	X	A	A	A	A	B	C	B	X	48	59	70	54	43	39	32	37	Y	B	B	B	B	
23	Y	A		S	A	A	A	X	X	X	X	X	X	X	X	X	O	X	B	Y	B	Y	S	A	A	
24	A	A	S	S	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	O	X	A	
25	A	A	B	A	A	B	B	B	B	B	B	B	B	O	X	46	46		Y	Y	O	X	B	B	Y	
26	B	A	A	A	A	A	A	B	A	O	X	X	O	X	X	X	58	58	42	B	B	A	S	Y	A	
27	A	A	A	A	A	S	Y	Y	B	B	O	X	O	X	B	O	X	O	X	B	B	B	B	B	A	A
28	Y	Y	A	A	A	A	A	A	B	B	B	O	X	X	X	X	O	X	A	Y	B	B	B	B	O	X
29	A	A	A	A	A	A	A	B	A	A	B	B	X	X	X	X	X	A	A		A	A	B	Y	A	
30	A	A	A	A	A	A	A	B	A	A	B	B	B	X	O	X	B	B	A	A	A	A	A	A	B	
31	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	Y	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	5	4	5		2	1	1	4	5	7	9	16	14	16	19	17	12	7	5	1	3	2	2	2		
MED	X	X	O	X		O	X	O	X		X	X	X	X	X	X	X		O	X	O	X		O	X	
U Q	39	43	53		38	33	38	32	33	33	40	49	52	59	54	49	38	32	37	24	24	36	37	38		
L Q	46	48	60					36	38	39	46	57	59	68	59	55	43	36	40		42					
	36	42	33					24	28	30	36	44	49	49	44	39	36	30	30		20					

IONOSPHERIC DATA STATION SHOWA-ST.

MAY 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	Y	Y	A	Y	Y	B	B	R	S	R			J	S		F	A	V	F	U	S	S	F	B	B	B				
2	B	Y	Y	Y	A		A	B	B	A	B	F	F	F	J	F	F	Y	B	A	A	A	A	A	A	A				
3	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	R	B	Y	A	B	A	A	A	A				
4	R	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	S	A	B	A	A	A	A	A	A	A				
5	B	A	A	S	F	B	B	A	B	B	B	B	B	B	B	B	B	B	Y	A	A	A	Y	A	A	A				
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	R	J	S	S				
7	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	S	A	B	B				
8	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	F	B	R	B	B	Y	B	Y	Y	Y				
9	J	F	A	B	B	B	B	B	S	A	R	B	B	B	B	B	R	B	B	B	Y	B	B	Y	S	S				
10	B	A	A	A	S	A	S	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B				
11	Y	D	S	U	S	A	A	A	B	B	F	F	F	F	F	F	F	B	B	B	B	B	B	B	B	Y				
12	A	R	R	Y	B	Y	Y	F	F	F	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	S				
13	36	37	32	D	S	A	R	A	R	F	J	F	B	F	F	F	F	F	F	B	B	B	B	B	B	B				
14	R	29	37	F	A	A	A	A	A	B	B	D	S	V																
15	Y	D	S	Y	Y	Y	A	B	A	B	F	F	J	R																
16	B	Y	A	B	A	A	A	B	B	B	A	45	B	R	R	R	42	59	47	A	S	A	Y	A	A					
17	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	D	S	D	S	B	A	A	A			
18	A	A	A	A	Y	B	A	A	Y	Y	R	R	D	R	U	R	F	B	B	B	B	B	B	Y	Y	Y				
19	A	A	B	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	A				
20	B	A	B	B	B	B	B	A	A	A	B	B	B	B	S	B	B	B	B	B	B	B	F	U	R	A	A			
21	F	A	A	A	A	F	B	A	B	B	B	U	R			S	B	B	B	B	B	B	B	B	B	B				
22	Y	F	R	A	A	A	A	A	B	C	B	42	49	54	39	37	29	23	27	Y	B	B	B	B	B	B				
23	Y	A	J	F	S	A	A	A	J	S	30	27	27	34	42	45	54	50	33	22	R	B	Y	B	Y	S	A	A		
24	A	A	S	D	S	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	R	A
25	A	A	B	A	A	B	B	B	B	B	B	B	B	R	B	R	Y	Y	J	S	R	B	B	B	Y	Y	Y	Y	Y	
26	B	A	A	A	A	A	A	B	A	R	22	29	37	44	42	42	47	31	A	B	A	S	Y	Y	A	A				
27	A	A	A	A	A	S	Y	Y	B	B	R	R	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	
28	Y	Y	A	A	A	A	A	A	B	B	B	R	J	F																
29	A	A	A	A	A	A	A	B	A	A	B	B	38	44	34	29	F	J	F	A	19	A	A	B	Y	A	A	A	A	
30	A	A	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	A	A	A	B
31	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	5	6	6	1	2	1	1	4	5	7	10	16	14	17	19	17	12	7	6	2	3	2	2	2						
MED	33	40	40	D	S		R		F											S	F	R								
U Q	40	46	47						28	28	28	38	48	52	54	53	47	35	30	31										
L Q	28	32	27						16	21	24	32	38	42	42	38	33	29	22	19										

IONOSPHERIC DATA STATION SHOWA-ST.

MAY 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	28	27	41	32	17	B	BE	BE	B	B	B	E	BE	BE	BE	B	17	12	E	BE	B	B	B	B				
2	B	21	26	21	40	42	52	B	B	60	B	32	E	BE	BE	BE	34	B	51	42	70	71	47	71				
3	71	47	87	B	B	68	B	B	B	B	B	B	B	B	B	B	27	B	26	42	B	44	48	49				
4	54	38	B	37	36	B	B	B	B	B	B	B	B	B	B	BE	B	21	44	B	42	42	45	48	44			
5	B	56	60	34	51	B	B	41	B	B	B	B	B	B	B	B	B	B	26	38	38	27	72	42				
6	80	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	26	36	37	44			
7	B	37	41	41	37	51	B	B	B	B	B	B	B	B	B	B	B	B	B	41	39	28	43	B				
8	B	B	38	B	B	B	B	B	B	B	B	B	B	BE	BE	BE	BE	24	24	B	18	B	23	32				
9	59	69	B	B	B	B	B	B	E	B	B	B	B	B	BE	B	B	B	B	26	B	B	39	38				
10	B	41	39	51	38	51	38	B	B	BE	B	23	26	28	33	24	B	37	B	B	B	B	B	B				
11	33	34	32	41	51	38	B	BE	BE	BE	BE	B	BE	BE	BE	B	B	B	B	B	B	B	B	32				
12	41	41	51	38	B	38	28	20	15	E	B	BE	B	B	BE	BE	BE	19	B	B	B	B	B	39				
13	48	46	51	49	37	44	37	30	19	E	B	BE	B	30	24	24	18	13	13	E	BE	BE	B	B				
14	E	S	24	37	51	68	57	47	48	52	B	BE	B	E	BE	BE	BE	17	26	26	E	BE	BE	B				
15	31	33	32	33	26	41	B	41	19	23	26	24	24	20	20	20	20	B	B	23	B	B	B	B				
16	B	40	69	B	59	42	51	B	B	B	51	37	B	B	36	26	14	20	38	47	38	61	41	50	70			
17	71	58	62	79	72	B	B	B	B	B	B	B	B	B	B	B	B	B	13	35	B	38	80	91				
18	37	41	42	34	27	B	41	48	32	27	31	27	24	E	B	27	26	B	B	B	B	B	31	16				
19	39	58	B	42	37	47	44	43	61	B	B	B	B	B	B	B	B	B	B	B	B	16	39	40	47			
20	B	37	B	B	B	B	B	42	52	41	B	B	B	B	S	B	B	B	B	B	B	41	38	44	46			
21	34	51	71	71	37	33	B	39	B	B	BE	BE	BE	BE	BE	B	24	B	B	B	B	B	B	B				
22	31	36	32	70	51	43	58	54	B	C	B	27	E	BE	BE	BE	28	37	34	41	26	B	B	B				
23	37	80	71	49	58	49	51	32	17	12	17	20	E	BE	BE	BE	E	BE	B	B	27	35	39	92				
24	60	59	34	38	46	90	46	60	B	B	B	B	B	B	B	B	B	B	B	B	42	B	41	39				
25	42	40	B	43	78	B	B	B	B	B	B	B	26	BE	B	29	37	27	E	B	B	B	32	16				
26	B	31	40	42	59	48	40	B	33	23	18	32	E	BE	BE	BE	E	B	B	B	44	27	29	28	34			
27	46	41	58	44	40	32	26	21	B	B	28	25	E	S	BE	BE	BE	B	B	B	B	B	31	29				
28	29	31	37	36	71	46	42	36	B	BE	BE	BE	BE	B	B	31	19	19	33	29	32	34	12	32				
29	39	45	41	31	42	52	46	B	42	B	B	B	BE	BE	S	31	34	29	E	B	13	35	38	12	29			
30	28	30	41	37	42	36	79	B	46	62	B	B	BE	BE	S	B	B	B	45	29	47	53	47	59	B			
31	64	60	49	52	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	39	26	47	46	41			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	23	29	25	25	24	20	16	15	12	13	11	16	14	17	19	19	15	12	13	16	17	14	21	22				
MED	39	41	41	41	42	45	45	41	32	23	23	26	E	BE	BE	BE	24	24	24	24	24	32	26	38	38	38	41	40
UQ	59	54	59	50	58	50	51	48	42	42	31	31	E	BE	B	30	30	27	31	32	38	39	42	42	45	48	47	
LQ	31	35	38	35	37	40	39	30	18	18	19	25	E	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE	BE

IONOSPHERIC DATA STATION SHOWA-ST.

MAY 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT.69°00.4'S LON.039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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		11	19	19	11	13	B	B	9	11	10	17	19	20	20	19	18	11	8	10	10	17	B	B	B	
2		B	7	9	8	13	11	18	B	B	24	B	23	30	20	21	29	22	B	14	13	9	9	16	8	
3		9	20	19	B	B	15	B	B	B	B	B	B	B	B	B	B	19	B	18	8	B	13	11	17	
4		16	19	B	13	19	B	B	B	B	B	B	B	B	B	B	B	21	13	B	10	12	9	19	16	
5		B	19	16	19	11	B	B	24	B	B	B	B	B	B	B	B	B	B	24	18	8	21	37	20	
6		20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	19	10	11	13	
7		B	20	24	36	23	21	B	B	B	B	B	B	B	B	B	B	B	B	B	19	9	15	13	B	
8		B	B	31	B	B	B	B	B	B	B	B	B	B	B	24	20	B	24	B	B	14	B	10	19	
9		9	11	B	B	B	B	B	B	24	19	23	B	B	B	B	36	B	B	B	19	B	B	10	13	
10		B	32	22	23	33	22	22	B	B	B	23	19	19	13	24	B	B	19	B	B	B	B	B	B	
11		10	10	12	21	20	22	B	B	23	19	19	31	B	24	23	22	B	B	B	B	B	B	B	9	
12		18	20	19	23	B	20	19	18	13	18	B	25	B	B	B	29	19	B	B	B	B	B	B	11	
13		15	13	20	13	19	10	14	11	14	17	B	13	30	24	24	18	13	13	B	B	B	B	B		
14	E S	24	13	18	13	14	17	14	24	B	B	33	20	21	19	19	12	9	9	13	12	9	B	B	B	
15		16	12	9	13	13	29	B	20	B	19	14	19	24	24	20	20	20	B	B	15	B	B	B	B	
16		B	9	16	B	17	19	13	B	B	B	21	21	B	36	26	12	20	20	11	21	13	13	11	10	
17		13	16	14	40	18	B	B	B	B	B	B	B	B	B	B	B	B	B	13	10	B	13	13	24	
18		20	24	30	24	20	B	25	17	13	19	19	20	21	24	21	19	B	B	B	B	B	B	11	11	
19		10	13	B	31	30	21	30	24	19	B	B	B	B	B	B	B	B	B	B	B	13	13	13	18	
20		B	25	B	B	B	B	B	24	23	33	B	B	B	B	S	B	B	B	B	B	11	9	19	13	
21		19	18	14	18	13	13	B	19	B	B	B	31	31	34	24	19	B	B	B	B	B	B	B	B	
22		9	9	7	19	19	19	14	16	B	C	B	20	24	25	20	19	19	17	11	18	B	B	B	B	
23		9	22	11	24	18	13	10	8	13	9	10	20	18	19	13	13	13	B	18	B	19	16	9	8	
24		13	24	18	15	13	19	14	19	B	B	B	B	B	B	B	B	B	B	B	B	5	B	10	9	
25		13	24	B	19	20	B	B	B	B	B	B	B	23	B	29	18	16	19	15	B	B	B	9	9	
26		B	12	13	24	29	19	20	B	24	17	14	15	20	19	19	14	24	B	B	B	16	11	9	7	13
27		18	19	19	19	19	14	14	11	B	B	18	E S	25	B	24	24	24	B	B	B	B	B	6	9	
28		13	9	9	8	13	13	14	13	B	B	B	31	19	19	13	11	11	13	7	B	B	B	9	9	
29		11	19	19	19	18	20	13	B	14	28	B	B	19	13	13	13	10	13	13	13	30	B	7	9	
30		9	13	19	24	16	23	14	B	24	19	B	B	B	E S	26	26	B	B	13	13	9	19	15	24	
31		15	31	19	16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	11	13	13	19	19
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED		16	19	19	21	19	21	30	B	B	B	B	31	B	34	24	24	B	B	B	21	19	B	16	16	
U Q		B	24	30	36	33	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
L Q		11	12	14	15	14	17	14	18	23	19	21	20	21	20	20	18	19	17	13	13	12	13	10	9	

IONOSPHERIC DATA STATION SHOWA-ST.

MAY 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	A	A	A	Y	B	B	B	270	230	205	200	215	210	200	A	200	200	220	215	230		B	B	B
2	B	Y	S	Y	A	230	A	B	B	A	B	B	250	250	240	240	250	Y	B	A	A	A	A	A	
3	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	A	B	Y	A	B	A	A	A	
4	235	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	A	A	
5	B	A	A	A	230	B	B	A	B	B	B	B	B	B	B	B	B	B	Y	A	A	A	A	A	
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	215	210	220	
7	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	B	
8	B	B	A	B	B	B	B	B	B	B	B	B	B	275	265	B	B	B	B	B	Y	B	Y	A	
9	A	A	B	B	B	B	B	B	S	AE	B	B	B	B	B	B	B	B	B	Y	B	B	A	A	
10	B	A	A	A	S	A	A	B	B	B	250	220	205	200	200	B	B	A	B	B	B	B	B	B	
11	A	225	220	A	A	A	B	B	BE	B	260	240	240	B	205	205	205	B	B	B	B	B	B	A	
12	AE	A	A	A	A	B	Y	Y	S	AE	S	BE	B	B	B	B	205	215	B	B	B	B	B	A	
13	230	220	240	A	240	AE	A	240	205	205	B	B	240	230	205	205	200	200	225	B	B	B	B	B	
14	S	245	245	A	A	A	A	A	B	B	B	245	220	220	205	200	220	205	240	255	210	B	B	B	
15	A	A	A	A	Y	A	B	A	B	270	230	225	205	200	200	200	205	B	B	Y	B	B	B	B	
16	B	A	A	B	A	A	A	B	B	B	A	A	B	235	B	B	B	A	A	A	A	A	A	A	
17	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	B	A	A	
18	A	A	A	A	A	B	A	A	A	A	A	B	245	250	215	250	250	B	B	B	B	B	A	Y	
19	A	A	B	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	A	
20	B	A	B	B	B	B	B	A	A	A	B	B	B	B	S	B	B	B	B	B	205	240	A	A	
21	A	A	A	A	A	F	B	A	B	B	BE	B	B	B	210	245	B	B	B	B	B	B	B	B	
22	A	A	220	A	A	A	A	A	B	C	B	250	235	205	200	235	255	A	235	Y	B	B	B	B	
23	A	A	225	A	A	A	A	A	A	A	240	210	205	210	200	200	215	B	A	B	A	A	A	A	
24	A	A	AE	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	205	
25	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	A	A	B	235	B	B	B	A	Y	
26	B	A	A	A	A	A	A	B	A	A	250	230	215	205	235	235	250	E	B	B	A	A	A	A	
27	A	A	A	A	A	A	A	Y	B	BE	SE	S	B	215	210	230	B	B	B	B	B	B	A	A	
28	A	A	A	A	A	A	A	A	B	B	BE	B	265	210	205	200	200	S	A	Y	B	B	B	215	
29	A	A	A	A	A	A	A	B	A	A	B	B	230	220	200	200	A	A	250	A	A	A	A	B	
30	A	A	A	A	A	A	A	B	A	A	B	B	BE	S	S	B	B	A	A	A	A	A	A	B	
31	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	Y	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	2	4	6	1	2	1	1	1	2	5	8	15	14	17	17	16	9	3	5	3	3	2	2	2	
MED	232	228	225	EA	235	230	EA	240	238	242	240	235	222	210	205	212	215	205	235	222	210	228	208	218	
U Q		248	240							265	260	250	235	228	225	245	252	225	245	EA	255	230			
L Q		222	220							218	235	225	210	205	200	200	202	200	228	215	205				

IONOSPHERIC DATA STATION SHOWA-ST.

JUN. 1995 f_{XI} (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	A	A	B	B	Y	B	B	B	B	B	B	B	B	B	B	O X 43	B	A	A	A	A	A	B
2	A	S	A	B	B	A	B	B	B	B	B	B	B	57	B	B	B	B	B	B	B	A	A	A
3	A	B	B	A	Y	Y	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	Y	44	A	A
4	A	B	B	S	A	A	S	A	S	A	X 33	X 37	X 50	B	B	B	B	B	B	B	B	S	B	B
5	A	A	A	A	A	A	B	B	A	A	O X 31	X 47	52	59	42	30	O X 32	Y	B	B	B	B	B	B
6	A	A	A	A	B	A	B	B	A	A	X 32	X 45	X 48	X 49	X 45	35	X 28	23	S	B	B	B	B	A
7	X 27	A	A	A	A	A	A	A	A	A	O X 33	X 41	B	B	B	B	B	B	B	B	B	B	A	A
8	O X 34	A	A	A	A	A	B	B	B	B	31	43	50	58	52	32	O X 32	B	B	B	B	B	B	B
9	A	Y	Y	Y	Y	Y	Y	Y	B	B	X 27	40	51	49	40	34	O X 34	B	B	B	B	B	Y	S
10	Y	B	Y	O X 49	A	A	A	A	B	38	40	42	X 42	B	B	B	O X 46	33	B	B	B	B	Y	Y
11	B	B	A	A	A	A	A	O X 37	B	A	X 42	X 52	X 47	X 39	X 45	X 32	B	B	B	Y	S	Y	Y	
12	Y	B	A	B	B	B	B	S	B	O X 32	X 43	B	O X 48	O X 44	O X 37	B	B	Y	B	B	B	B	B	
13	Y	B	Y	O X 37	B	Y	Y	B	A	27	37	O X 48	O X 39	A	B	B	S	B	B	B	Y	Y	Y	
14	S	Y	S	O X 34	O X 34	O X 32	44	Y	Y	31	47	46	46	44	36	B	B	Y	Y	Y	S	O X 33	O X 33	
15	S	A	A	O X 29	Y	B	O X 20	A	A	30	42	X 42	B	B	B	A	B	S	S	C	B	A	A	A
16	A	A	A	A	A	A	B	A	O X 34	36	37	39	43	47	48	B	B	S	S	S	S	A	A	A
17	A	B	A	O X 32	A	A	A	A	A	23	30	39	47	51	42	B	Y	B	A	B	B	B	B	B
18	O X 25	A	O X 44	A	47	35	29	A	A	A	B	B	B	B	B	B	O X 34	B	B	B	B	B	O X 33	A
19	A	A	41	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
27	A	Y	A	A	A	A	A	A	Y	B	B	B	B	O X 46	O X 43	B	B	B	B	B	B	B	B	B
28	A	A	O X 40	B	A	B	A	B	B	B	B	O X 46	O X 46	39	37	B	B	B	B	A	A	A	A	A
29	A	A	A	A	X 40	S	Y	B	Y	B	X 27	X 39	X 39	X 43	X 44	30	Y	B	B	B	O X 19	O X 36	B	B
30	Y	Y	A	A	A	A	A	A	A	S	B	B	B	B	X 46	38	B	B	B	A	A	A	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	1	2	1	7	2	2	2	1	3	14	15	11	14	14	12	6	1			1	2	2	1
MED	X 26	X 34	O X 42	O X 40	O X 37	34	30	32	O X 37	34	31	42	X 48	X 48	X 44	36	O X 32	23			O X 19	O X 40	O X 33	O X 33
U Q					47					38	33	43	51	51	45	42	O X 34							
L Q					O X 32					23	30	39	46	46	40	33	32							

IONOSPHERIC DATA STATION SHOWA-ST.

JUN. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	Y	B	B	B	B	B	B	B	B	B	B	R	B	A	A	A	A	A	B
2		A	S	A	B	B	A	B	B	B	B	B	B	B	F	B	B	B	B	B	B	B	A	A	A
3		A	B	B	A	Y	Y	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	Y	F	A	A
4		A	B	B	S	A	A	S	A	S	A				B	B	B	B	B	B	B	B	S	B	B
5		A	A	A	A	A	A	B	B	A	A	F	R	F	F	F	F	R	Y	B	B	B	B	B	B
6		A	A	A	A	B	A	B	B	A	A	F	R	F	F	F	F	R	Y	S	B	B	B	B	A
7			A	A	A	A	A	A	A	A	A	S		B	B	B	B	B	B	B	B	B	B	A	A
8			R	A	A	A	A	B	B	B	B	F		F	J	F	S	B	B	B	B	B	B	B	B
9		A	Y	Y	Y	Y	Y	Y	Y	B	B	J	F	F	F	F	S	B	B	B	B	B	B	Y	S
10		Y	B	Y	A	R	A	A	A	B	F	F		B	B	B	F	R	B	B	B	B	Y	Y	B
11		B	B	A	A	A	A	A	A	R	B	A		J	R		J	S	F	B	B	B	Y	S	Y
12		Y	B	A	B	B	B	B	B	S	B	R		B	U	R	R	B	B	Y	B	B	B	B	B
13		Y	B	Y	Y	R	B	Y	Y	B	A	F		C	R	R	A	B	B	S	B	B	Y	Y	Y
14		S	Y	S	A	R	R	S	F	Y	Y	F		R	J	F	R	B	B	Y	Y	Y	S	R	R
15		D	S	A	A	A	R	Y	B	R	A	A	F	J	S	B	B	A	B	S	S	C	B	A	A
16		A	A	A	A	A	A	B	A	A	R	F				F	F	B	B	S	S	S	S	A	A
17		A	B	A	A	R	A	A	A	A	J	F		F		R	B	Y	B	A	B	B	B	B	B
18		R	A	R	A	F	F	F	A	A	A	B	B	B	B	B	B	R	B	B	B	B	A	R	A
19		A	A	F	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
20		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26		C	C	C	C	C	C	C	C	C	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
27		A	Y	A	A	A	A	A	A	Y	B	B	B	B	R	R	B	B	B	B	B	B	B	B	B
28		A	A	A	U	R	B	A	B	A	B	B	B	R	R	F	F	B	B	B	B	A	A	A	A
29		A	A	A	A	R	S	Y	B	Y	B			40	40	29	29	F	Y	B	B	B	S	R	B
30		Y	Y	A	A	A	A	A	A	A	D	S	B	B	B	B	J	F	B	B	B	A	A	A	A
31																									
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		3	1	2	1	7	2	2	2	1	4	14	15	11	14	14	12	6	1			1	2	2	1
MED		19	R	34	U	R	R	26	23	22	R	F	36	41	42	38	30	F	R	F		S	31	27	R
U Q		21				37					29	27	37	44	43	39	34	F	R						
L Q		R				R					22	F	33	38	40	33	27	F	R						

IONOSPHERIC DATA STATION SHOWA-ST.

JUN. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	42	42	B	B	32	B	B	B	B	B	B	B	B	B	B	27	B	42	51	42	38	39	B			
2	38	30	71	B	B	44	B	B	B	B	B	B	B	E	B	B	B	B	B	B	B	37	35	37			
3	47	B	B	70	37	27	45	B	B	B	B	B	B	B	B	B	B	B	B	28	27	40	32	40			
4	70	B	B	33	41	44	31	37	28	27	17	15	E	B	B	B	B	B	B	B	B	S	B	B			
5	28	40	35	92	46	57	B	B	34	32	26	25	E	B	E	B	E	B	E	B	B	B	B	B			
6	28	42	44	47	B	66	B	B	35	38	36	18	E	B	E	B	E	B	E	B	B	B	B	36			
7	19	40	46	58	54	39	30	31	27	21	20	31	B	B	B	B	B	B	B	B	B	B	32	44			
8	42	23	38	46	47	46	B	B	B	B	27	19	E	B	E	B	E	B	B	B	B	B	B	B			
9	38	22	27	27	27	31	30	26	B	B	E	B	E	B	E	B	B	B	B	B	B	B	19	12			
10	28	B	28	41	59	58	70	44	B	26	22	19	E	B	B	E	B	E	B	B	B	B	28	22			
11	B	B	39	71	42	38	59	39	41	B	45	26	E	B	E	B	E	B	B	B	B	16	26	12	16		
12	21	B	50	B	B	B	B	B	27	B	E	B	E	B	E	B	E	B	B	B	B	B	B	B			
13	18	B	12	12	12	B	28	23	B	34	51	18	E	B	E	B	E	B	B	B	B	B	11	22			
14	S	29	30	39	41	40	37	27	12	12	12	27	C	E	B	E	B	B	B	B	S	40	40				
15	19	41	70	42	28	11	B	13	34	41	17	12	B	B	B	31	B	B	31	26	C	30	28	37			
16	36	59	71	46	49	70	B	41	41	38	26	19	E	B	E	B	E	B	B	B	B	17	39	37			
17	58	B	59	41	32	42	47	58	48	44	27	26	E	B	E	B	E	B	22	B	B	B	B	B			
18	17	39	57	79	47	45	51	42	46	42	B	B	B	B	B	B	B	B	26	B	B	B	39	38	38		
19	39	38	52	59	39	48	46	59	33	46	B	B	B	B	B	B	B	B	B	B	B	17	42	37			
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
26	C	C	C	C	C	C	C	C	C	46	B	B	B	B	B	B	B	B	B	B	B	B	17	39	37		
27	69	27	43	39	48	36	41	37	28	B	B	B	E	B	E	B	E	B	B	B	B	B	B	B			
28	39	37	38	38	B	46	B	46	B	B	B	B	E	B	E	B	E	B	B	B	B	41	38	37	41		
29	42	70	46	43	38	24	17	B	12	B	12	15	E	B	E	B	E	B	B	B	E	S	9	26	B	B	
30	18	10	31	31	58	45	42	42	37	39	B	B	B	E	B	E	B	E	B	B	B	42	48	48	45	96	
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	20	16	21	20	18	21	14	15	15	14	15	15	11	14	14	14	8	3	8	5	8	13	16	15			
MED	37	38	43	42	42	44	42	39	34	38	24	19	18	U	22	E	B	E	B	19	17	26	32	28	37	36	37
U Q	42	42	54	58	48	47	47	44	41	42	28	26	22	30	26	25	24	31	35	46	42	38	40	41			
L Q	20	28	33	38	37	34	30	27	27	27	17	18	17	19	E	B	E	B	16	14	20	22	19	26	25	36	

IONOSPHERIC DATA STATION SHOWA-ST.

JUN. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	20	29	B	B	24	B	B	B	B	B	B	B	B	B	B	19	B	15	11	13	13	9	B	
2	19	19	19	B	B	24	B	B	B	B	B	B	B	24	B	B	B	B	B	B	B	9	9	13	
3	19	B	B	21	32	23	36	B	B	B	B	B	B	B	B	B	B	B	B	15	13	13	17	12	
4	13	B	B	30	19	20	13	14	14	13	13	14	19	B	B	B	B	B	B	B	S	B	B		
5	11	13	9	19	24	19	B	B	19	19	17	25	19	19	20	15	19	13	B	B	B	B	B		
6	9	14	19	20	B	24	B	B	19	19	15	18	14	14	13	14	13	7	9	B	B	B	B	9	
7	9	13	13	18	19	24	18	19	17	13	13	16	B	B	B	B	B	B	B	B	B	B	9	13	
8	16	13	14	24	20	14	B	B	B	B	16	19	19	14	16	21	B	B	B	B	B	B	B	B	
9	9	9	13	9	9	9	9	10	B	B	28	19	13	14	19	18	B	B	B	B	B	B	7	9	
10	13	B	14	13	14	19	21	34	B	22	14	19	B	B	B	21	21	B	B	B	B	9	8	B	
11	B	B	19	13	24	30	19	13	13	B	18	18	16	14	14	13	9	B	B	B	14	20	9	10	
12	14	B	19	B	B	B	B	B	23	B	19	18	B	25	23	21	B	B	20	B	B	B	B	B	
13	11	B	9	8	9	B	11	11	B	14	13	24	C	30	25	21	B	B	13	B	B	9	7	B	
14	S	9	9	8	9	6	9	19	9	8	8	9	10	13	13	21	B	B	11	10	16	S	12	11	
15	13	14	19	11	9	9	B	11	14	20	13	7	B	B	B	19	13	18	C	B	9	8	19	B	
16	11	9	8	9	19	14	B	23	23	20	13	10	13	16	14	25	B	B	24	14	9	14	13	19	
17	17	B	31	18	16	13	14	17	11	13	10	10	11	14	19	B	16	B	19	B	B	B	B	B	
18	14	9	16	13	10	9	9	10	19	20	B	B	B	B	B	B	19	B	B	B	B	19	13	11	
19	13	21	18	20	13	19	20	17	26	19	B	B	B	B	B	B	B	B	B	B	B	13	10	9	
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
26	C	C	C	C	C	C	C	C	C	19	B	B	B	B	B	B	B	B	B	B	B	B	13	10	10
27	23	21	18	24	16	24	20	24	24	B	B	B	B	30	26	B	B	B	B	B	B	B	B	B	
28	6	19	19	19	B	24	B	19	B	B	B	B	24	23	13	14	B	B	B	B	14	11	24	8	
29	18	10	19	23	14	20	14	B	9	B	10	13	13	19	17	18	14	B	B	B	E	S	9	9	
30	14	9	9	13	20	20	19	15	20	14	B	B	B	B	19	23	B	B	B	B	17	14	19	13	13
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	22	23	23	23	23	23	23	23	23	24	24	24	23	24	24	24	24	24	24	24	23	24	22	24	24
MED	14	19	18	19	19	20	20	19	23	20	18	19	B	28	24	22	B	B	B	B	B	19	13	13	
U Q	18	B	19	24	B	24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
L Q	11	10	13	13	13	14	14	14	14	16	13	15	14	15	16	18	19	B	B	20	B	14	13	9	10

IONOSPHERIC DATA STATION SHOWA-ST.

JUN. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	B	Y	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	A	A	A	B
2	A	A	A	B	B	A	B	B	B	B	B	B	B	240	B	B	B	B	B	B	B	B	A	A	A
3	A	B	B	A	Y	Y	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	Y	205	A	A	
4	A	B	B	S	A	A	A	A	S	A	250	230	205	B	B	B	B	B	B	B	B	S	B	B	
5	A	A	A	A	A	A	B	B	A	A	A	A	250	200	210	200	205	210	Y	B	B	B	B	B	
6	A	A	A	A	B	A	B	B	A	A	E A	280	215	205	200	200	200	220	A	A	B	B	B	A	
7	A	A	A	A	A	A	A	A	A	A	A	A	240	B	B	B	B	B	B	B	B	B	B	A	A
8	A	230	A	A	A	A	B	B	B	B	A	A	235	210	205	200	220	B	B	B	B	B	B	B	B
9	A	Y	A	A	A	A	A	A	B	B	E B	280	230	205	205	230	270	E A	B	B	B	B	B	A	S
10	A	B	A	A	235	A	A	A	B	240	255	230	B	B	B	230	260	E B	B	B	B	B	A	Y	B
11	B	B	A	A	A	A	A	A	215	B	A	250	215	205	210	220	200	B	B	B	Y	S	Y	Y	
12	Y	B	A	B	B	B	B	B	A	B	E B	285	230	B	225	210	235	B	B	Y	B	B	B	B	
13	Y	B	Y	Y	S	B	A	A	B	A	E S	250	250	C	200	230	S	A	B	B	A	B	B	Y	A
14	S	A	A	A	A	A	A	A	Y	Y	E A	250	200	205	205	205	205	B	B	Y	Y	Y	S	A	
15	E A	A	A	A	A	A	S	B	A	A	E A	300	240	B	B	B	A	B	A	A	C	B	A	A	A
16	A	A	A	A	A	A	B	A	A	A	A	A	250	220	205	230	220	B	B	A	S	S	S	A	A
17	A	B	A	A	A	A	A	A	A	A	A	A	230	220	205	230	B	Y	B	A	B	B	B	B	B
18	A	A	220	A	A	A	A	A	A	A	A	B	B	B	B	B	A	B	B	B	B	B	E A	A	A
19	A	A	E A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
27	A	Y	A	A	A	A	A	A	Y	B	B	B	B	230	240	B	B	B	B	B	B	B	B	B	B
28	A	A	E A	A	B	A	B	A	B	B	B	B	250	220	230	215	B	B	B	B	A	A	A	A	
29	A	A	A	A	210	S	Y	B	Y	B	E A	270	205	205	210	200	220	E B	Y	B	B	B	S	B	B
30	Y	Y	A	A	A	A	A	A	A	205	B	B	B	B	255	205	B	B	B	A	A	A	A	A	A
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	1	1	2	1	2				1	2	9	15	11	14	14	12	4					2	2		
MED	E A	230	235	E A	222				215	222	E	270	230	205	205	220	219	210					212	230	
U Q											E B	282	250	220	220	230	225	240							
L Q											E	250	230	205	205	200	205	205							

JUN. 1995 h'F (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

JUL. 1995 f_xI (0.1MHz)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	A	S	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	S	B	Y	O	X	O	X
2	A	A	A	A	A	B	A	Y	A	Y					V	X	Y	Y	B	B	B	B	B	B	A	
3	O	X	A	A	O	X	A	A	A	A	O	X	X	X	X	O	X		B	B	B	B	B	B	B	
4	B	O	X	A	A	A	A	A	A	A	B	B						A	B	S	A	B	A	A		
5	X	31	29	27	Y	O	X	A	A									B	B	B	S	B	B	Y		
6	Y	A	A	A	X													Y	B	B	A	B	B	A		
7	A	S	A	A	A	A	A	A	A	O	X	X	X				S	S	O	X	A	S	A	A	A	
8	A	A	A	A	A	O	X	A	A									O	X	O	X	B	B	B	B	
9	B	A	A	A	A			S	A	A	B							B	B	S	A	A	O	X	A	
10	A	A	A	A	A	A		27	27									S	A	A	A	B	B	Y	B	
11	A	A	A	A	A	A	A	A	A	Y	X	X						A	Y	S	Y	B	B	B	Y	
12	A	B	S	A	A	A		27	27									A	A	Y	B	B	B	S		
13	S	A	S	S	X	A												O	X	X	B	B	Y	A	B	
14	A	A	A	O	X	O	X	A	O	X									Y	S	B	B	Y	A	A	
15	A	A	A	A	A	A	A	A	X	X									A	B	B	B	A	B		
16	B	A	A		A	A	A	A	A	B	X	X							A	A	A	A	A	A	A	
17	A	A	A	A	A	A	A	A	A	B	B	S	O	X	B	B	B	B	B	B	B	B	B	S	A	
18	O	X	O	S	B	B	B	A	A	B	A	O	X	X	O	X	B	B	B	B	B	B	B	S	S	S
19	A	A	O	X	A	A	A	A	B	A	S	A	O	X	X	B	B	B	B	B	B	B	B	B	A	
20	A	A	A	O	X	A	A	A	A	A	B	O	X	X	X	X	B	B	B	B	B	B	B	Y	Y	
21	S	A	A	A	A	Y	S	S	Y	B	B	B	S	O	X	B			A	B	B	B	B	B	S	
22	A	Y	A	A	Y	A	A	A	A	B	B	O	X	X	O	X	X	X	A	B	B	B	B	O	X	A
23	A	A	A	A	A	B	A	A	Y	B	X	X	X	X	X	X	X	X			B	B	A	A	A	
24	A	A	O	X	A	A	A	A	A	A	A	A	B	B	B	B	B	B	S	A	S	A	A	A	A	
25	A	A	A	A	B	A	B	A	B	B	B	B	O	X	O	X	B	B	B	B	B	B	B	A	B	
26	B	Y	S	A	A	A	A	B	A	A	O	X														
27	B	B	A	O	X	S	A	S	A	A	A								O	X	C	B	B	B	A	
28	A	A	A	A	A	A	A	Y	Y	X	X	X	X	X	X	O	X		S	S	A	A	B	A	S	
29	A	A	A	A	A	B	A	A																		
30	A	A	A	A	A	A	S	A	A	O	X															
31	A	A	A	A	O	X	X	Y	B	B	B	X	O	X	B											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	3	3	3	6	6	4	5	8	7	10	21	25	27	26	25	23	18	7	3			1	2	2		
MED	O	X	O	X	O	X	X																			
U Q	32	33	34	42	40	36	29	32	29	30	33	42	47	46	44	40	32	24	23							
L Q	38	48	44	48	55	38	38	39	37	32	36	46	50	48	46	42	37	28	27							
	31	29	27	31	33	34	27	27	26	27	32	39	44	44	40	36	27	23	22							

IONOSPHERIC DATA STATION SHOWA-ST.

JUL. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	A	S	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	S	B	Y	R	R	R
2	A	A		A	A	B	A	Y	A	Y	F	F	F	F	V		Y	Y	B	B	B	B	B	A
3	U	R	A	A	A	A	A	A	F	F	F	F	J	R	F	R	F	B	B	B	B	B	B	B
4	B	U	R	A	A	A	A	A	A	B	B	F	F	F	F	F	F	A	B	S	A	B	A	A
5		F	F	Y	R	A	A	F	F	A		A	F	F	F	Y	R	B	B	B	S	B	B	Y
6	Y	A	A	J	F	F	A	R	J	R	A	R	F	A		A	R	Y	B	B	A	B	B	A
7	A	S	A	A	A	A	A	A	A	R		23	23			39	30	24	20	S	S	U	S	A
8	A	A	A	A	A	R	A	A	F		U	S	30	36	R	38	29	20	U	R	B	B	B	B
9	B	A	A	A	A	F	S	A	A	B	F	F	F	F	F	J	F	B	B	S	A	A	R	A
10	A	A	A	A	A	A	F	J	F	B	B	J	F	U	R		D	S	A	A	A	B	B	Y
11	A	A	A	A	A	A	A	A	A	Y	J	S	25	37	40	F	J	F	J	F	U	R		Y
12	A	B	S	A	A	A	J	F	F	A	B	J	F	38	36	37	36	35	16	A	A	Y	B	B
13	S	A	S	S	J	S	A	F	R	F	R	R	R	F	F	F	F	J	F	R	B	B	Y	A
14	A	A	A	R	U	R	A	R	F	J	F	F	J	R	F	F	F	J	R	Y	S	B	B	Y
15	A	A	A	A	A	A	A	J	R	F	J	R	J	R	J	S	F	J	F	F	A	B	B	B
16	B	A	A	F	A	A	A	A	A	B		28	36	F	U	R	F	R		A	A	A	A	A
17	A	A	A	A	A	A	A	A	A	B	B	S	32	R	B	B	B	B	B	B	B	B	B	S
18	U	R	R	D	S	B	B	B	A	A	B	A	26	30	39	35	U	R	B	B	B	B	B	S
19	A	A	A	U	R	A	A	A	B	A	S	A	33	39	B	B	B	B	B	B	B	B	B	A
20	A	A	A	U	R	A	A	A	A	A	B	R	J	R	J	R	B	B	B	B	B	B	B	Y
21	S	A	A	A	A	Y	S	S	Y	B	B	B	D	S	B	F	J	F	A	B	B	B	B	S
22	A	Y	A	A	Y	A	A	A	A	B	B	R	39	37	43	41	34	31	A	B	B	B	B	U
23	A	A	A	A	A	B	A	A	Y	B		27	33	45	40	40	33	25	17	16	B	B	A	A
24	A	A	U	R	A	U	R	A	A	A	A	A	B	B	B	B	B	B	D	S	A	S	A	A
25	A	A	A	A	B	A	B	A	B	B	B	B	U	R	U	R	B	B	B	B	B	B	A	B
26	B	Y	S	A	A	A	A	B	A	A	U	S	F	F	J	F	F	B	B	B	B	B	B	B
27	B	B	A	S	S	A	D	S	A	A	A	A	F	F	F	F	F	F	U	S	D	C	B	
28	A	A	A	A	A	A	A	Y	Y		J	S	J	F	J	F	35	26	F	S	D	S	A	
29	A	A	A	A	A	B	A	A	J	S	19	26	28	34	41	40	36	31	26	B	U	S	B	
30	A	A	A	A	A	A	S	A	A		24	33	44	43	40	33	34	39	24	F	B	B	B	
31	A	A	A	A	R		F	Y	B	B	B		33	40	B	F	F	33	Y	B	B	B	B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	3	4	6	6	4	6	8	7	10	21	25	28	26	25	23	19	8	5			1	2	2
MED	U	R	R		R		F		F		27	36	40	39	36	33	26	18	16	S		R	R	
U Q	U	R	R		R		F		F		28	24	30	39	44	42	40	35	J	F	F			
L Q	25	23	23	25	27	25	18	21	19	18	25	32	37	36	34	28	20	17	16					

IONOSPHERIC DATA STATION SHOWA-ST.

JUL. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	47	30	71	38	B	B	B	41	45	B	B	B	B	B	B	B	B	B	23	B	27	33	33						
2	38	48	53	51	38	B	51	17	39	21	17	28	E	B	E	B	E	B	B	B	B	B	B	30						
3	31	30	32	36	73	38	52	39	16	E	B	E	A	E	B	E	B	E	B	E	S	B	B	B						
4	B	41	42	70	42	46	47	39	51	B	E	B	E	B	E	B	E	B	E	B	14	21	B	18	17					
5	27	39	36	22	26	49	38	29	28	38	27	27	26	24	18	27	E	B	E	B	19	21	B	12						
6	17	31	45	29	46	32	27	E	B	19	31	26	23	47	40	57	E	B	E	B	13	16	B	28	28					
7	31	26	29	27	32	41	41	42	43	41	24	15	E	S	E	B	E	B	E	B	13	14	B	26	26					
8	25	37	31	28	27	32	52	52	31	12	E	S	E	B	E	B	E	B	E	B	13	14	B	B	B					
9	B	59	62	44	32	E	B	16	22	44	30	B	16	16	26	26	19	19	B	B	21	46	37	26	33	38				
10	39	41	33	47	40	41	20	E	B	9	B	B	11	11	12	11	15	13	21	26	27	39	B	B	11	B				
11	25	31	31	70	58	46	41	53	46	12	E	B	8	21	15	18	24	37	42	12	27	16	B	B	15	B				
12	41	B	27	32	70	38	31	31	31	B	E	B	13	21	23	18	23	12	14	27	29	10	B	B	21	B				
13	26	37	32	31	31	59	38	E	B	E	B	19	15	26	14	37	38	17	15	16	31	10	B	B	B	B				
14	37	77	32	60	51	58	53	30	26	21	22	26	16	E	B	E	B	E	B	13	18	18	26	B	B	39	B			
15	51	92	71	59	58	47	42	27	27	12	27	39	40	46	29	45	46	27	B	B	B	B	B	B	40	B				
16	B	31	45	31	38	59	47	30	27	B	11	22	E	B	E	B	E	B	E	B	16	10	32	53	51	41	80	64		
17	97	71	45	41	69	80	42	71	42	B	B	28	24	B	B	B	B	B	B	B	B	B	B	B	B	26	42			
18	42	45	76	B	B	B	52	39	B	37	29	19	26	26	B	B	B	B	B	B	B	B	B	B	B	11	15	28		
19	35	38	43	46	47	52	53	B	36	31	31	30	18	E	B	E	B	E	B	B	B	B	B	B	B	B	32	B		
20	71	39	36	46	63	51	39	44	52	42	B	31	E	B	E	B	E	B	E	B	B	B	B	B	B	B	24	27		
21	33	40	40	32	39	22	24	26	12	B	B	B	E	B	E	B	E	B	B	B	B	B	B	B	B	B	B	22	B	
22	36	23	69	30	17	38	56	46	38	B	B	E	B	E	B	E	B	E	B	13	11	37	B	B	B	B	38	40		
23	36	46	51	45	61	B	41	37	20	B	17	17	E	B	E	B	E	B	E	B	22	16	22	16	13	B	42	36	41	
24	38	42	46	71	45	46	51	41	66	51	A	A	B	B	B	B	B	B	B	B	34	43	27	32	38	42	106	B		
25	69	47	71	70	B	76	B	51	B	B	B	B	E	B	E	B	E	B	E	B	B	B	B	B	B	B	B	B	B	
26	B	19	30	42	52	47	44	B	37	32	E	B	23	22	21	21	22	22	20	B	B	B	B	B	B	B	B	B	B	
27	B	B	39	48	40	46	47	46	39	37	27	23	E	B	E	B	E	B	E	B	17	13	12	B	B	B	B	41	B	
28	37	34	41	58	51	40	39	17	15	14	27	31	21	16	26	21	17	16	E	B	11	27	38	B	B	41	22	B		
29	32	41	70	37	52	B	42	47	37	E	B	14	18	26	23	21	19	16	E	B	13	10	B	B	B	B	B	31	B	
30	39	41	48	48	39	44	20	46	22	E	B	13	18	21	26	E	B	18	33	69	37	39	B	B	B	B	26	47	B	
31	70	39	70	47	31	27	26	14	B	B	B	E	B	E	B	E	B	E	B	20	36	19	15	B	B	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	25	29	31	30	29	26	29	28	27	19	22	27	29	26	25	24	22	20	13	10	9	10	16	23						
MED	37	40	42	46	42	46	42	39	31	26	18	23	21	19	20	19	18	17	26	27	32	29	32	31						
UQ	42	46	53	58	55	51	51	46	41	38	27	28	28	26	24	28	23	30	28	39	42	41	39	41						
LQ	31	32	32	32	35	38	34	26	E	B	14	14	20	19	18	18	16	E	B	14	14	12	23	19	26	25	22			

IONOSPHERIC DATA STATION SHOWA-ST.

JUL. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)
 LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	19	24	24	24	B	B	B	31	23	B	B	B	B	B	B	B	B	B	19	B	10	9	16
2	9	16	19	19	13	B	14	13	14	18	11	15	19	24	19	13	14	11	B	B	B	B	B	10
3	9	9	16	19	14	21	14	9	9	13	9	13	16	19	18	19	E S	B	B	B	B	B	B	B
4	B	9	13	23	36	18	19	24	19	B	B	23	19	13	19	13	14	9	B	19	13	B	11	9
5	10	7	7	8	9	14	24	13	11	10	16	11	11	13	14	19	19	B	B	B	13	B	B	9
6	9	9	8	7	6	7	9	19	19	19	9	13	15	14	16	14	13	13	B	B	19	B	B	9
7	9	8	8	8	8	14	16	14	11	9	E S	8	15	18	13	9	7	7	8	9	9	9	8	8
8	8	8	8	9	9	8	19	13	9	E S	19	20	14	14	10	9	13	14	B	B	B	B	B	B
9	B	13	14	13	13	16	15	12	13	B	12	13	13	9	19	19	B	B	14	10	14	9	9	10
10	9	8	10	8	8	7	7	9	B	B	9	9	9	8	7	8	9	9	7	7	B	B	9	B
11	8	9	9	8	9	8	6	9	9	9	8	8	9	18	9	9	9	8	9	9	B	B	B	10
12	19	B	9	8	9	10	8	9	8	B	13	9	13	11	9	9	9	8	8	B	B	B	B	9
13	9	8	9	8	8	19	11	19	15	15	14	13	13	10	8	8	9	10	B	B	13	13	B	B
14	14	13	9	9	9	9	9	9	9	7	9	9	10	19	19	13	9	13	13	B	B	8	7	9
15	9	20	9	19	13	13	10	9	8	9	8	9	13	12	10	10	13	13	14	B	B	B	13	B
16	B	11	8	9	14	15	14	19	9	B	9	15	24	30	19	11	16	9	8	14	15	11	13	13
17	9	9	13	24	19	14	16	16	24	B	B	21	24	B	B	B	B	B	B	B	B	B	9	7
18	8	14	9	B	B	B	19	18	B	18	19	18	10	18	B	B	B	B	B	B	B	B	9	9
19	9	9	13	14	18	18	19	B	20	23	18	19	18	B	B	B	B	B	B	B	B	B	B	10
20	19	18	18	16	22	18	19	24	19	19	B	18	24	24	24	B	B	B	B	B	B	B	19	13
21	9	9	9	13	9	9	9	9	9	B	B	B	29	29	B	13	17	19	B	B	B	B	B	8
22	9	9	8	9	9	13	13	19	19	B	B	24	19	16	16	13	9	13	B	B	B	B	11	9
23	9	10	11	19	24	B	19	19	18	B	14	13	20	19	16	16	11	8	13	B	B	19	11	9
24	25	20	18	21	13	13	13	19	20	14	A	A	B	B	B	B	B	14	19	19	13	10	10	14
25	12	19	19	13	B	16	B	30	B	B	B	B	30	24	24	B	B	B	B	B	B	24	B	B
26	B	14	10	30	16	16	19	B	24	19	23	16	6	16	19	20	B	B	B	B	B	B	B	B
27	B	B	19	14	24	18	14	23	24	19	18	19	21	19	20	13	10	13	10	B	B	B	B	9
28	9	14	14	16	14	14	13	10	10	8	10	13	18	14	13	9	9	9	11	9	23	B	24	9
29	10	29	29	23	23	B	19	13	13	14	13	15	18	21	19	12	13	B	9	B	B	B	B	8
30	10	11	11	14	24	13	9	13	7	13	13	15	16	18	19	11	14	8	B	B	B	B	8	13
31	11	13	19	14	12	18	9	8	B	B	B	20	29	B	20	13	9	13	B	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31
MED	9	11	11	14	13	15	14	14	15	19	14	15	18	18	19	13	14	13	B	B	B	B	24	10
U Q	B	19	18	18	19	23	18	19	19	24	B	B	20	24	24	24	20	B	B	B	B	B	B	B
L Q	9	9	9	9	9	13	9	9	9	13	9	13	13	13	13	10	9	9	11	19	19	13	9	9

IONOSPHERIC DATA STATION SHOWA-ST.

JUL. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	B	A	S	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	S	B	S	205	225	
2	A	A	A	A	A	B	A	Y	A	Y	A	255	245	205	220	245	A	A	B	B	B	B	B	A	
3	210	A	A	220	A	A	A	A	AE	B	295	280	240	215	215	225	230	240	E	S	B	B	B	B	
4	B	210	A	A	A	A	A	A	A	B	B	250	210	205	215	205	210	A	B	A	A	B	A	A	
5	E	A	E	A	A	AE	A	A	AE	A	A	AE	A	A	A	A	AE	B	B	B	B	A	B	B	
6	Y	A	A	255	A	A	AE	B	A	AE	A	A	A	A	A	A	220	220	Y	B	B	A	B	B	
7	A	A	A	A	A	A	A	A	A	A	255	250	200	200	200	205	A	A	A	A	A	A	A	A	
8	A	A	A	A	A	A	A	A	AE	S	265	240	210	210	200	210	200	240	B	B	B	B	B	B	
9	B	A	A	A	AE	B	A	A	A	B	250	205	200	230	220	215	B	B	A	A	A	215	A	A	
10	A	A	A	A	A	A	AE	B	B	B	220	220	200	200	200	200	200	A	A	A	B	B	Y	B	
11	A	A	A	A	A	A	A	A	A	Y	210	220	200	200	205	200	A	Y	A	A	B	B	B	Y	
12	A	B	A	A	A	A	A	A	A	B	240	220	235	205	200	210	A	A	A	Y	B	B	B	A	
13	A	A	A	A	A	A	AE	B	BE	B	290	220	270	250	240	215	205	245	205	215	200	B	B	B	
14	A	A	A	A	A	A	A	A	A	A	240	200	220	215	220	200	215	A	S	B	B	Y	A	A	
15	A	A	A	A	A	A	A	A	AE	A	290	240	245	205	200	205	200	245	245	A	B	B	B	A	
16	B	A	A	250	A	A	A	A	A	B	250	205	225	210	220	205	205	A	A	A	A	A	A	A	
17	A	A	A	A	A	A	A	A	A	B	B	S	280	B	B	B	B	B	B	B	B	B	B	A	
18	200	200	205	B	B	B	A	A	B	A	A	245	205	220	B	B	B	B	B	B	B	B	S	S	
19	A	A	210	A	A	A	A	B	A	S	A	A	210	B	B	B	B	B	B	B	B	B	B	A	
20	A	A	A	210	A	A	A	A	A	A	B	250	200	200	250	B	B	B	B	B	B	B	B	A	
21	A	A	A	A	A	Y	S	S	Y	B	B	B	240	250	B	210	205	A	B	B	B	B	B	A	
22	A	A	A	A	S	A	A	A	A	B	B	245	205	250	210	215	205	A	B	B	B	B	250	A	
23	A	A	A	A	A	B	A	A	Y	B	250	230	210	205	250	205	210	A	B	B	B	A	A	A	
24	A	A	245	A	230	A	A	230	A	A	A	A	B	B	B	B	B	225	A	A	A	A	A	A	
25	A	A	A	A	B	A	B	A	B	B	B	B	245	245	235	B	B	B	B	B	B	B	A	B	
26	B	Y	A	A	A	A	A	B	A	AE	B	280	235	235	200	210	230	B	B	B	B	B	B	B	
27	B	B	A	240	A	A	200	A	A	A	250	235	215	215	215	205	205	240	210	B	B	B	B	A	
28	A	A	A	A	A	A	A	Y	Y	260	210	215	205	200	200	200	205	S	230	A	A	B	A	S	
29	A	A	A	A	A	B	A	A	A	250	250	240	210	205	210	200	205	B	250	B	B	B	B	A	
30	A	A	A	A	A	A	A	A	A	240	200	205	225	200	220	210	210	215	B	B	B	B	A	A	
31	A	A	A	A	A	E	A	Y	B	B	B	245	240	B	200	230	205	Y	B	B	B	B	B	B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	3	3	4	6	3	2	2	4	2	7	18	24	28	26	25	23	18	6	4			1	2	1	
MED	205	205	228	245	U	245	325	260	E	B	260	E	265	248	236	210	205	215	205	206	232	222	215	228	225
U Q	E	A	E	A	E	A		E	B		E	290	250	245	230	215	222	215	215	240	240				
L Q	200	200	208	220	230			248			250	240	220	205	200	200	200	205	215	212					

IONOSPHERIC DATA STATION SHOWA-ST.

AUG. 1995 f_{XI} (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	A	A	A	A	A	O X			X	X	X	X	X	X	X	B	S	X	B	B	B	B	B	A	
2	A	A	A	A	A	A	A	A	S	O	X	X	X	X	X	X	X	X	X	X		A	B	A	A	
3	A	A	A	A	A	A	A	A	C	A	S	B	B	B	O	X	X	O	X	B	S	S	A	A	A	
4	A	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	X	O	X	B	B	Y	A	A
5	A	A	A	A	A	A	S	Y	B		X	X	X	X	X	X	X	X	X	X	B	B	Y	A	B	
6	A	A	A	A	A	S	A	O X	B		X	X	X	X	X	X	X	X	X	O	X	B	B	B	B	A
7	A	A	A	A	A	S	Y	O X	O X	X	X	X	X	O	X	X	X	X	X	O	X	B	A	A	A	A
8	A	A	O X	A	B	A	A	B	B	B	B	X	X	B	B	O	X	X	O	X	O	X	B	A	A	B
9	A	A	38	A	X	B	B	B	B	B	B	B	B	B	B	B	B	X	B	B	B	A	A	B	A	
10	A	A	A	S	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	S	
11	X	A	O X	A	A	A	A	A	A	A	B	B	B	X	B	B	X	B	B	B	B	B	B	B	B	A
12	A	X	39	A	A	B	A	A	A	X	X	X	X	O	X	X	X	O	X			B	B	B	S	A
13	A	38	A	A	A	A	B	B	B	B	B	B	B	B	B	B	S	O	X	O	X	B	B	B	A	A
14	S	A	38	33	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	S	A	B	A	A	A	
15	A	A	A	A	A	B	B	B	B	B	B	B	B	X	B	B	B	B	B	B	B	B	B	B	A	A
16	A	A	A	A	A	B	B	B	B	B	B	B	B	B	R	B	B	O	X	B	B	B	B	Y	S	
17	Y	B	A	A	A	B	A	A	A	X	X		O	X	X		B	B	B	B	A	A	A	A	A	A
18	A	A	A	A	A					35	42	49	45	56	61			X	O	X	B	B	S	A	A	
19	S	S	O X	A	A	A	A	A	O X	A	B	B	B	B	O	X	O	X	X	B	B	B	B	O	X	Y
20	A	A	A	B	A	A	A	X	B	B	O	X	X	O	X	X	X	X	X	B	R	B	A	S	A	
21	A	A	S	A	S	A	A	B	B		46	52	59	53	51	59	60	44	32	O	X	O	X	B	B	B
22	B	B	A	A	S	A	A	B	X	O	X	X	X	X	O	X	X	X	X	S	O	X	A	A	A	A
23	A	A	B	A	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A	A
24	A	A	A	A	A	B	A	A	A	O X	B	B	O	X	X	V	X	X	O	X	B	B	B	A	A	A
25	A	A	A	A	A	A	A	A	B	Y	A	B	B	B	B	B	B	B	B	B	A	Y	A	A	A	A
26	A	A	A	A	A	A	A	A	A	O X	X	B	B	B	B	B	O	X	X	B	B	B	B	B	B	B
27	A	A	A	A	X	A	B	A	X	X	X	X	X	X	X	X	X	B	O	X	B	B	O	X	Y	A
28	A	A	A	S	A	O X	A			36	43	49	50	63	64	63	51		48	41		B	C	C	S	
29	A	A	A	A	A	A	C	C	C	C	A	B	B	O	X	C	C	C	C	C	C	C	C	C	C	A
30	A	C	C	A	A	A	C	C	C	C	O	X	B	O	X	C	X	X	C	X	X	C	C	C	B	C
31	B	A	C	A	C	C	Y	X	X	X	X	X	X	X	O	X	O	X	X	X	X	C	C	B	C	Y
	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	2	5	1	2	1	2	7	8	16	18	15	18	19	20	19	20	20	14	5			1	1		
MED	X		O X		X	O X		X	X	X	X	X	X	X	X	X	X	X	X	X	O	X	O	X		
U Q			O X					X	X	X	X	X	X	O	X			X	X							
L Q			38					O X		X	X	X	X	X	X	X	X	X	X	O	X	O	X			

IONOSPHERIC DATA STATION SHOWA-ST.

AUG. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	A	A	A	A	A	F	F	J	F						B	S	J	S	B	B	B	B	B	A
2	A	A	A	A	A	A	A	A	S	R			U	R	J	F	J	F	J	S	F	A	B	A	A
3	A	A	A	A	A	A	A	D	C	A	D	S	B	B	B	R	J	F	F	F	B	S	S	A	A
4	A	A	A	A	A	A	A	A	A	A					F	F				R	B	B	Y	A	A
5	A	A	A	A	A	A	S	Y	B	F					F				F	B	B	Y	A	B	
6	A	A	A	A	A	D	S	A	R	B	J	S					F	F	F	F	B		B	B	A
7	A	A	A	A	A	S	Y	S	U	S	J	S			F	R		J	R	J	F	U	R	B	A
8	A	A	R	A	B	A	A	B	B	B	J	R	J	R	B	B			R	R	R	B	A	A	B
9	A	A	F	A	J	S	B	B	B	B	B	B	B	B	B	B			B	B	B	A	A	B	A
10	A	A	A	D	S	B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	Y	S
11	29	A	U	R	A	A	A	A	A	A	B	B	B	J	R	B	B	J	R	B	B	B	B	B	A
12	A	J	R	A	A	B	A	A	A	A			U	R				F	F	F	B	B	B	S	A
13	A	J	F	A	A	A	A	B	B	B	B	B	B	B	B	D	S	S	S	U	S	B	B	B	A
14	D	S	A	F	J	F	A	A	B	B	B	B	B	B	B	B	B	B	B	S	A	B	A	A	A
15	A	A	A	A	A	B	B	B	B	B	B	B	B	J	R	B	B	B	B	B	B	B	B	A	A
16	A	A	A	A	A	B	B	B	B	B	B	B	B	B	D	R	B	B	R	B	B	B	B	Y	S
17	Y	B	A	A	A	B	A	A	A				F	R	R	F	B	B	B	B	A	A	A	A	A
18	A	A	A	A	A	A	F	J	F	F							F			R	B	B	S	A	A
19	S	S	U	R	A	A	A	A	A	R	A	B	B	B	B	R	R	R	B	B	B	B	B	R	Y
20	A	A	A	B	A	A	A	A	B	B					F	F	F	F	D	R	B	B	A	S	A
21	A	A	S	A	D	S	A	A	B	B	F	F			F	F	F	F	U	S	R	B	B	B	B
22	B	B	A	A	S	A	A	B			28	34	51	53	46	45	43	43	50	26	S	23	A	A	A
23	A	A	B	A	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A
24	A	A	A	A	A	B	A	A	A						R	R	V	J	F	J	R	R	B	B	A
25	A	A	A	A	A	A	A	A	B	Y	A	B	B	B	B	B	B	B	B	B	B	A	Y	A	A
26	A	A	A	A	A	A	A	A	A	R							R	R	B	B	B	B	B	B	B
27	A	A	A	A	J	S	A	B	A								45	48	B	R	F	B	U	R	Y
28	A	A	A	S	A	R	A	F	F				D	S	F	J	F	J	F	F	F	J	F	C	S
29	A	A	A	A	A	A	C	C	C	C	A	B	B	R	C	C	C	C	C	C	C	C	C	C	A
30	A	C	C	A	A	A	C	C	C	C	C	R	U	R	C				J	C	C	C	C	B	C
31	B	A	C	A	C	C	Y						J	R					F	C	C	C	B	C	Y
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	2	2	5	2	3	2	2	8	8	17	18	16	18	19	21	20	19	20	15	5		1	1		
MED	28	32	35	30	36	20	22	24	27	31	38	40	44	45	46	44	40	28	27	19		17	23		
U Q			42		41			24	30	36	43	46	50	50	50	46	46	39	29	24					
L Q			28		28			22	22	27	35	38	41	43	42	40	35	27	23	16					

IONOSPHERIC DATA STATION SHOWA-ST.

AUG. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S ION. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	28	44	50	46	51	41	31	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	31				
2	34	37	41	59	42	45	41	29	21	26	32	32	21	38	70	29	27	31	12	32	37	B	37	46				
3	31	32	38	59	71	59	47	41	48	44	B	B	B	E	B	E	B	E	B	B	29	30	39	38	34			
4	47	41	46	48	51	31	47	35	31	23	17	23	23	22	40	16	E	B	E	B	E	B	16	32	37			
5	38	45	41	40	31	31	21	11	B	12	17	19	E	B	21	21	19	17	11	26	12	B	17	26	B			
6	31	36	37	29	59	37	38	26	B	17	31	28	E	B	E	B	14	22	27	16	B	B	B	B	31			
7	31	38	51	37	27	22	13	11	E	B	E	B	E	B	E	B	E	S	E	B	E	B	31	40	28	70		
8	40	71	91	90	B	49	46	B	B	B	B	B	B	E	B	E	B	E	B	E	B	E	B	27	42	B		
9	58	53	71	43	46	B	B	B	B	B	B	B	B	B	B	B	B	E	B	E	B	E	B	30	37	B	46	
10	46	44	41	51	B	58	B	46	32	41	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14	19		
11	38	39	51	47	48	49	53	41	42	33	B	B	B	E	B	B	B	E	B	E	B	E	B	B	B	B	27	
12	42	44	58	70	B	31	47	45	31	19	20	26	E	B	21	22	21	27	20	24	B	B	B	26	39			
13	41	44	70	46	46	41	B	B	B	B	B	B	B	B	B	B	B	B	E	B	E	B	E	B	35	38		
14	41	52	47	41	56	88	B	B	B	B	B	B	B	B	B	B	B	B	B	B	26	32	B	46	41	39		
15	42	71	42	42	54	B	B	B	B	B	B	B	B	B	E	B	B	B	B	B	B	B	B	B	43	38		
16	43	48	42	38	31	B	B	B	B	B	B	B	B	B	E	B	B	E	B	E	B	E	B	14	21			
17	17	B	25	29	40	B	37	32	33	23	24	22	E	B	25	36	24	B	B	B	B	43	56	48	44	51		
18	38	41	40	55	41	51	31	15	21	23	21	22	E	B	22	26	26	26	26	21	17	B	B	25	42	39		
19	23	26	45	46	27	48	40	28	31	41	B	B	B	B	E	B	E	B	E	B	B	B	B	B	30	21		
20	91	51	42	B	42	45	30	26	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B	33	26	79	
21	33	26	22	27	31	31	38	B	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B	B	B	B	
22	B	B	38	31	26	45	46	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	28	37	45	47		
23	58	72	B	41	44	58	B	B	B	51	46	B	B	B	B	B	B	B	B	B	B	B	B	23	31	32		
24	39	42	37	59	35	B	51	47	32	23	B	B	E	B	30	23	23	19	19	20	B	B	B	32	46			
25	52	47	93	41	34	37	58	58	B	30	33	B	B	B	B	E	B	E	B	E	B	B	B	32	26	31	33	34
26	31	42	47	54	52	42	32	47	50	E	B	E	B	E	B	E	B	E	B	E	B	B	B	B	B	B	31	
27	33	31	41	47	40	47	B	45	26	E	B	E	B	E	B	E	B	E	B	E	B	B	B	B	14	12	39	
28	103	59	38	22	27	12	26	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B	C	C	27	
29	31	38	44	70	38	57	C	C	C	52	B	E	B	E	B	E	B	E	B	E	B	C	C	C	C	C	42	
30	37	C	C	51	58	59	C	C	C	C	E	B	E	B	E	B	E	B	E	B	E	B	C	C	C	B	C	
31	B	29	C	36	C	C	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	C	C	B	C	12	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	29	28	28	30	27	25	21	20	17	23	19	16	18	19	20	19	20	19	17	9	7	14	21	27				
MED	38	43	42	46	42	45	38	30	31	23	21	22	22	24	25	E	B	E	B	E	B	29	30	32	32	38		
UQ	44	50	50	54	51	54	47	45	32	33	30	26	E	B	E	B	E	B	E	B	32	37	39	42	46			
LQ	31	38	39	38	31	34	30	15	E	B	E	B	E	B	E	B	E	B	E	B	E	B	28	23	26	31		

IONOSPHERIC DATA STATION SHOWA-ST.

AUG. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	13	9	16	24	19	14	7	15	13	8	19	19	18	18	24	B	S	13	B	B	B	B	B	19
2	18	14	15	13	13	13	18	7	8	9	10	14	14	14	14	9	9	9	8	8	14	B	9	9
3	9	9	9	13	19	13	9	13	9	10	B	B	B	24	16	19	20	14	B	21	8	9	9	9
4	13	19	14	14	13	15	14	9	7	8	7	7	18	14	16	13	16	16	13	B	B	9	8	9
5	19	12	13	16	13	9	9	7	B	9	9	19	18	18	16	9	9	9	12	B	B	13	19	B
6	9	9	9	9	10	15	14	11	B	13	14	14	21	18	19	13	10	9	14	B	B	B	B	11
7	9	9	13	11	9	9	10	9	11	14	14	16	15	16	16	19	10	13	18	B	14	10	8	7
8	7	24	12	30	B	19	19	B	B	B	B	30	36	B	B	26	19	24	19	18	14	9	9	B
9	18	9	10	13	13	B	B	B	B	B	B	B	B	B	B	B	20	B	B	B	13	11	B	18
10	24	19	30	18	B	24	B	34	29	23	B	B	B	B	B	B	B	B	B	B	B	B	9	9
11	8	13	19	23	19	18	14	20	21	19	B	B	B	34	B	B	29	B	B	B	B	B	B	15
12	14	18	13	22	B	20	16	16	14	19	20	19	21	20	19	17	27	20	24	B	B	B	9	7
13	8	8	14	10	13	24	B	B	B	B	B	B	B	B	B	34	24	21	20	B	B	B	9	7
14	20	13	15	14	24	35	B	B	B	B	B	B	B	B	B	B	B	B	20	9	B	9	14	14
15	14	16	30	19	32	B	B	B	B	B	B	B	B	32	B	B	B	B	B	B	B	B	9	15
16	12	19	19	18	19	B	B	B	B	B	B	B	B	B	34	B	B	22	B	B	B	B	8	9
17	13	B	9	13	23	B	19	19	20	19	24	19	25	36	24	B	B	B	B	13	14	13	23	15
18	22	24	30	13	21	19	14	10	9	13	16	13	22	19	20	19	13	9	10	B	B	B	8	9
19	9	11	14	19	19	21	13	13	18	19	B	B	B	B	33	24	21	B	B	B	B	B	9	8
20	15	14	24	B	30	15	10	9	B	B	30	13	30	30	24	19	14	10	23	B	B	19	19	13
21	9	13	9	10	10	19	17	B	B	14	21	23	13	22	24	24	21	13	14	14	B	B	B	B
22	B	B	11	10	14	22	18	B	16	19	19	20	20	21	20	20	16	9	9	8	19	8	14	9
23	14	24	B	24	19	19	B	B	B	22	23	B	B	B	B	B	B	B	B	B	B	18	9	5
24	7	10	14	11	14	B	14	9	7	23	B	B	30	17	20	19	19	20	B	B	B	9	10	
25	9	19	14	10	13	14	24	20	B	23	24	B	B	B	B	34	38	B	B	B	18	14	8	9
26	8	11	20	18	19	20	24	25	16	23	24	B	B	B	B	34	38	B	B	B	B	B	B	9
27	17	8	13	13	19	19	B	14	13	22	22	19	20	21	19	23	B	24	21	B	B	9	9	9
28	19	19	18	14	9	9	9	13	14	19	19	19	19	19	19	20	13	13	13	20	B	C	C	8
29	8	16	8	8	13	16	C	C	C	21	B	B	34	C	C	C	C	C	C	C	C	C	C	10
30	10	C	C	22	24	19	C	C	C	C	24	B	24	C	19	C	C	C	9	C	C	C	B	C
31	B	9	C	14	C	C	9	15	10	15	C	19	20	E	C	19	19	18	14	9	C	C	B	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	29	31	30	30	29	29	29	30	30	31	31	29	30	29	28	29	30	28	28	28	28	30
MED	13	14	14	14	19	19	17	16	20	19	24	36	30	24	24	23	21	20	22	B	B	B	9	9
U Q	18	19	19	19	23	24	B	B	B	B	23	B	B	B	B	B	B	B	B	B	B	B	B	15
L Q	9	9	12	11	13	15	12	10	12	14	19	19	20	18	19	19	15	13	13	19	B	9	9	9

IONOSPHERIC DATA STATION SHOWA-ST.

AUG. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

D ^H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	A	A	A	A	A	A	A	B	B							B	S		B	B	B	B	B	A					
2	A	A	A	A	A	A	A	A	A	240	240	235	205	210	210			210				A	B	A	A				
3	A	A	A	A	A	A	A			A		B	B	B			220	220	200	235	230		S	A	A	A			
4	A	A	A	A	A	A	A	A	A	255	230	215	200	220	225	200	200	210	260			B	B	Y	A	A			
5	A	A	A	A	A	A	A	Y	B	E	A	E	S									B	B	Y	A	B			
6	A	A	A	A		205	A	A	B	B	B	B	E	B			240	200	205	200	220	205	225		B	B	B	B	A
7	A	A	A	A	A	A	Y	A	A													B	A	A	A	A			
8	A	A		A	B	A	A	B	B	B	E	B	B	B	B	B		E	B	E	B	B	B	A	A	B			
9	A	A		A		B	B	B	B	B	B	B	B	B	B	B						B	A	A	B	A			
10	A	A	A		B	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	A				
11	220		A	A	A	A	A	A	A	A	B	B	B									B	B	B	B	A			
12	A	230	A	A	B	A	A	A	A	E	B											B	B	B	A	A			
13	A		A	A	A	A	B	B	B	B	B	B	B	B	B							B	B	B	A	A			
14	250	A		A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	S	A	B	A	A	A	A				
15	A	A	A	A	A	B	B	B	B	B	B	B	B	E	B	B	B	B	B	B	B	B	B	A	A				
16	A	A	A	A	A	B	B	B	B	B	B	B	B	B								B	B	B	S	S			
17	Y	B	A	A	A	B	A	A	A													B	A	A	A	A			
18	A	A	A	A	A	A	A	A	A	A												B	B	A	A	A			
19	A	A		A	A	A	A	A	A	A	B	B	B	B	E	B						B	B	B	A	A			
20	A	A	A	B	A	A	A	A	B	B	E	B	E	B								E	B	B	A	A			
21	A	A	A	A	A	A	A	B	B	230	200	210	210	200	200	205	200	205	270	205		B	B	B	B				
22	B	B		A	A	A	A	B		240	240	205	220	205	205	210	205	200	200		200		A	A	A	A			
23	A	A	B	A	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	Y	A	A				
24	A	A	A	A	A	B	A	A	A	E	B	B	B	E	B							B	B	B	A	A			
25	A	A	A	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A			
26	A	A	A	A	A	A	A	A	A	E	B	B	B	B	B	E	B	E	B	B	B	B	B	B	B	B			
27	A	A	A	A	B	A	B	A	E	A	B											B	B	Y	A				
28	A	A	A	A	A	A	A	E	B	275	220	230	220	210	215	205	200	215	205	205	210	200	B	C	C	A			
29	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A			
30	A	C	C	A	A	A	C	C	C													C	C	C	B	C			
31	B	A	C	A	C	C	A			295	235	205	200	220	210	230	200	210	200	205	300	C	C	B	C	Y			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	2	2	4	2	2	1		3	4	16	18	15	17	19	21	20	20	20	15	4			1	1					
MED	235	218	228	225	238	205		275	233	238	228	220	208	212	215	209	212	206	232	202			210	250					
U Q			238					295	260	E	B	B	E	B							E	B							
L Q			212					225	228	230	220	210	205	205	202	202	202	205	220	200									

AUG. 1995 h'F (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

SEP. 1995 f_{XI} (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	A	O X 34	A	A	A	O X 30	X 32	X 42	X 44	X 49	X 54	X 53	X 56	X 57	X 60	X 50	X 42	X 47	O X 50		27	B	A	A
2	A	A	A	A	A	A	O X 39	X 46	X 43	X 45	X 45	X 58	X 50	X 58	X 59	X 57	X 56	X 53	X 44	X 42	X 33	30	B	B	A
3		O X 33	X 42	X 41	A	A	A	O X 33	X 42	X 47	X 49	X 50	X 54	X 54	X 59	X 53	X 59	X 44	X 45	X 32	28	B	B	B	
4		B	A		A	Y	B	B	X 32	X 43	X 47	B	X 59	X 60	X 56	X 59	X 54	X 52	X 45	X 43	X 38	O X 24	B	B	B
5	A	A	A	A	A	B	B	B	A	A	A	X 47	B	B	X 49	X 63	B	A	A	A	A	A	A		A
6	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	O X 43	B	B	S	A	A	A	A	
7	A	A	A	A	A	A	B	B	A O 39	X	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A
8	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A
9	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	Y	Y
10	A	A	A	A	A	A	S		X 27	X 39	X 45	X 46	X 45	X 52	R	B	B	X 51	B	O X 43	X 43	35	Y	A	A
11	A	A	B	A		B	A	A	B	B	B	B	B	B	B	B	X 45	B	B	B	S	Y	A	A	A
12	A	B	B	B	B	B	A	B	A O 34	X 37	X	B	B	B	B	B	O X 45	X 44	X 38	B	B	B	A	A	
13	A	A	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	Y	A	A
14	A	A	A	A	A	A	A O 31	X 38	X	B	B	B	B	B	B	X 52	B O 30	X 47	X 49	X 34	B	B	Y	A	A
15	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	S	A	A	A
16	A	A	A	A	A	A	A	X O 37	X O 40	X 39	Y	B	B	B	B	B	O X 42	X O 40	X O 38	X O 29	B	B	A	A	A
17	A O 39	X	B	A	A O 42	X	A	B	A O 38	X O 38	X O 40	X O 45	X O 47	X O 46	X O 43	X O 45	X	B	X 39	X 38	29	B	A	X 25	
18	X 25	A	A	Y	X 30	X 27	X 31	X 35	X 45	X 47	X O 49	X O 50	X O 55	X 57	X 52	X 55	X O 51	X O 47	X 44	X 42	X 32	25	O X 23	B	
19	A	A	A	A	A	R	A	X 43	X 44	X 48	X O 52	X 56	X 58	X 58	X 54	X 59	X 49	X 46	X 44	X 39	X 33	X 29	A	A	A
20	37	A	A	A	A	A	A	A	A	B	B	B	72	62	62	55	61	52	57	58	48	44	A	A	A
21	A	A	A	A	A	A	A	X 45	X 45	X 50	X 49	X 53	X 56	X 54	X 59	X 58	X 53	X 50	X 48	X 32	A	A	A	A	A
22	A	A	A	A	A	A	A O 39	X O 43	X O 45	X O 51	X O 51	X 54	X 59	X 58	X 59	X 54	X 55	X 54	X 45	X 38	X 32	X 27	B	B	B
23	A	A O 59	X	R	A	A	A	A	S	X 49	X 47	X 49	X 52	X 53	X 53	X 58	X 68	B	B	B	S	A	A	A	A
24	A	A	A	A	B	B	A	A	B O 43	X	B	B	B	B	B	B	O X 48	X 50	X 47	X 46	47	27	A	A	A
25	A	A	A	A	A O 32	X 41	X	A	A	X O 52	X 50	X 50	B	X 57	X 57	X 53	X 53	X 50	X 48	B	39	27	26	O X 24	
26	A	A	A O 33	X	A	S	B		X 37	X 44	B	B	B O 53	X 54			B	B	B	B	X O 37	X O 38	X O 37	X O 32	A
27	A	A	A	A	A	A	A	X 47	X 49	B	B	B O 57	X 70	X 73	X 87	X 74	X 65	X O 74	X O 65	S	B	A	A	B	A
28	A	A O 53	X 49	R	A O 30	X O 41	X 37	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A
29	A	A	A	A	A O 32	X 41	X 44	V	X 59	X 50	X 57	X 57	X 65	X 62	X 59	X 56	X 58	X 51	X 50	X 46	X 37	X 32	X 28	X O 27	
30	X 69	A	A	A	A	A O 40	X 44	X 47	X 46	X 43	X 53	X 57	X 58	X 55	X 55	X 55	R O 54	X 54	B	46	39	37	B	B	
31																									
CNT	4	2	5	2	3	5	7	15	15	18	13	15	16	16	17	17	20	17	17	16	16	8	6	3	
MED	35	O X 40	O X 41	O X 41	X O 30	X O 32	X 39	X 37	X 43	X 46	X O 49	X 50	X 54	X 57	X 57	X 56	X 52	X 47	X 45	X 40	34	30	28	O X 25	
U Q	53		O X 56		30	42	41	44	45	48	52	54	58	59	59	60	54	52	48	46	38	34	32	O X 27	
L Q	29		34		30	30	31	32	42	43	46	47	53	54	52	54	46	44	42	36	30	27	26	O X 24	

IONOSPHERIC DATA STATION SHOWA-ST.

SEP. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	A	R	A	A	A	R						F	J	R	F	J	R	F	F	R	F	B	A	A	
2	A	A	A	A	A	A	R	J	X				J	R			J	R	J	R	F	F	B	B	A	
3	F	U	R	J	R	A	A	A	R				R	J	R		J	R	J	F	F	F	B	B	B	
4	B	A	F	A	Y	B	B										B	A	A	A	A	R	B	B	B	
5	A	A	A	A	A	B	B	B	A	A	A	J	S	B	B							A	A	F	A	
6	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B		R		B	B	S	A	A	A	
7	A	A	A	A	A	A	B	B	A	R	B	B	B	B	B	B		B	B	B	B	A	A	A	A	
8	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B		B	B	B	A	A	A	A	A	
9	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B		B	B	A	B	B	B	Y	Y	
10	A	A	A	A	A	A	S	J	F				D	R	B	B				R	F	Y	A	A		
11	A	A	B	A	F	B	A	A	B	B	B	B	B	B	B			B	B	B	S	Y	A	A	A	
12	A	B	B	B	B	B	A	B	A	R	R	B	B	B	B			R		R	B	B	B	A	A	
13	A	A	B	B	B	A	A	A	B	B	B	B	B	B	B			B	B	B	B	A	Y	A	A	
14	A	A	A	A	A	A	A	R	R	B	B	B	B	B				R	R	R	R	B	B	Y	A	
15	A	A	A	A	A	B	B	B	B	B	B	B	B	B				B	B	A	A	S	A	A	A	
16	A	A	A	A	A	A	A		R		Y	B	B	B	B	B		R	R	R	R	B	B	A	A	
17	A	U	R	B	A	A	R	A	B	A	R	R	R	R	R	R		R	R	B		F	J	F	B	A
18	J	S	A	A	Y		J	F					R	R	R	R		R	R	J	F	J	F	R	B	
19	A	A	A	A	A	D	R	A				J	R	Z	F	F		R	R	J	R	F	F	D	S	A
20	J	R	A	A	A	A	A	A	A	B	B	B		F					F	J	R	A	A	A	A	
21	A	A	A	A	A	A	A		H	H				V	J	F				A	F	A	A	A	A	
22	A	A	A	A	A	A	A		R	R	R			J	F	J	R	R	F	J	R	R		B	B	
23	A	A	R	D	R	A	A	A	S				J	R				F	F	B	B	D	S	A	A	A
24	A	A	A	A	B	B	A	A	B	R	B	B	B	B	B			R		B	B	F	F	A	A	
25	A	A	A	A	A	R		A	A		R		B								B	F	F	F	F	
26	A	A	A	R	A	S	B	F					R	R	B	B				B	J	R	R	R	A	
27	A	A	A	A	A	A	A													R	S	B	A	A	B	A
28	A	A	R	F		R	R	A	A	A	B	B	B	B	B				B	B	B	B	B	B	A	
29	A	A	A	A	A	R	F	V	F			J	R	F	F			F		F	F	F	F	U	S	
30	63	A	A	A	A	A						B	R				D	R	U	R	B	F	F	B	B	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	4	2	5	3	3	6	7	15	15	18	13	15	16	17	17	17	21	17	17	16	16	8	7	3		
MED	29	U	R	R	24	30	31	31	37	40	43	44	48	50	49	49	45	41	38	34	26	24	22	19		
U Q	47		50	41	24	36	34	38	39	42	46	48	52	53	53	54	47	46	42	40	32	27	27	21		
L Q	23		26	27	24	26	25	27	36	37	40	41	46	48	46	48	40	38	35	28	23	19	17	18		

IONOSPHERIC DATA STATION SHOWA-ST.

SEP. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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		31	31	37	70	46	46	30	E	B	E	B		21	21	25	27	31	21	22	19	17	14	12	B	27	27								
2		27	31	41	41	78	59	56	27	E	B		20	23	27	16	26	24	21	E	B	E	B	E	B	B	B	30							
3		44	52	52	52	51	40	41	22	20	22	28	20	27	27	26	25	21	17	11	E	B	E	B	E	B	B	B							
4		B	36	32	26	17	B	B	B	16	17	E	B	20	B	E	B	27	26	27	22	24	21	15	17	12	E	B	B	B	B				
5		31	63	80	90	41	B	B	B		43	59	47	26	B	B	22	E	B		B	47	53	46	43	58	42	70							
6		62	51	48	42	50	51	39	41	B	B	B	B	B	B	B	B	E	B		B	24	B	B	31	39	46	45	41						
7		33	71	71	59	59	46	B	B		37	27	B	B	B	B	B	B	B	B	B	B	B	B	B	43	31	32	70						
8		41	30	32	44	B	B	48	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	47	46	48	46	42						
9		42	71	43	69	43	42	B	B	B	B	B	B	B	B	B	B	B	B	B	B	33	B	B	B	B	B	15	18						
10		40	39	33	31	41	34	22	29	E	B	E	B		E	B		E	B		B	21	B	E	B	20	37	31	32	59	44				
11		41	52	B	47	27	B	37	41	B	B	B	B	B	B	B	E	B		B	23	B	B	B	34	17	59	80	70						
12		59	B	B	B	B	B	43	B	37	31	E	B	23	B	B	B	B	E	B		E	B	B	B	B	B	41	41						
13		59	71	B	B	B	51	42	42	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	31	22	31	41							
14		39	40	A	A	42	46	39	E	B	21	30	B	B	B	B	B	23	B	27	31	31	32	B	B	B	12	32							
15		37	41	42	42	32	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	42	42	17	46	46	46	41							
16		41	46	37	39	40	39	32	26	21	21	22	B	B	B	B	B	E	B	E	B	E	B	E	B	B	B	31	31						
17		29	36	B	49	51	27	42	B	39	24	23	22	E	B	E	B	E	B	E	B	E	B	E	B	E	B	27	26						
18		26	41	29	12	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B					
19		36	78	52	47	39	44	44	26	23	25	26	33	29	38	33	26	24	E	B		20	17	16	13	13	27	36							
20		52	79	57	71	57	52	58	70	42	B	B	B	E	B	B	26	27	22	22	23	E	B	E	B	29	41	46	33						
21		41	51	59	46	41	37	47	36	21	23	26	28	32	33	27	23	E	B		E	B		14	32	14	31	29	36						
22		59	51	42	42	39	37	31	18	21	22	22	28	33	29	25	26	23	22	17	13	14	11	E	B	E	B	E	B	E	B	B			
23		41	40	31	48	51	58	43	52	43	33	27	28	27	31	26	53	16	E	B		B	B	B	39	44	54	70							
24		46	70	69	49	B	B	45	46	B	E	B	B	B	B	B	B	E	B	E	B		24	20	17	E	B	E	B	E	B	B			
25		32	33	43	51	40	33	30	47	58	31	27	27	B	E	B	B	27	31	25	21	21	27	B	E	B	28	17							
26		27	26	28	28	31	26	B	47	E	B	B	B	B	E	B	E	B	30	28	B	B	B	E	B	E	B	E	B	E	B	B			
27		70	39	39	47	72	52	44	41	30	B	B	B	B	B	B	E	B	E	B	E	B	B	B	58	58	B	27							
28		70	59	34	37	21	27	21	47	39	43	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	27						
29		39	46	66	37	46	43	35	24	21	22	27	31	32	36	29	26	22	19	E	B	E	B	E	B	E	B	E	B	E	B	B			
30		36	71	90	52	46	51	41	27	22	26	B	E	B	B	27	26	26	31	E	B	E	B	B	E	B	E	B	E	B	E	B	B		
31																																			
CNT		29	29	25	27	26	23	24	23	23	20	15	15	16	17	17	17	17	21	18	21	22	25	20	24	25									
MED		41	46	42	47	42	43	41	29	22	23	23	27	27	28	26	24	E <td>B</td> <td>23</td> <td>19</td> <td>18</td> <td>18</td> <td>18</td> <td>31</td> <td>30</td> <td>36</td> <td></td> <td></td> <td></td> <td></td> <td></td>	B	23	19	18	18	18	31	30	36								
UQ		49	66	58	52	51	51	44	46	39	30	27	29	30	30	E <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>B</td>	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	B	
LQ		32	38	34	39	39	34	32 <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>B</td> <td>22</td> <td>20</td> <td>21</td> <td>22</td> <td>22</td> <td>27</td> <td>27</td> <td>24</td> <td>23</td> <td>21</td> <td>19</td> <td>17</td> <td>14</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>E</td> <td>B</td> <td>B</td>	E	B	E	B	E	B	B	22	20	21	22	22	27	27	24	23	21	19	17	14	E	B	E	B	E	B	B

IONOSPHERIC DATA STATION SHOWA-ST.

SEP. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	9	9	9	9	9	11	8	13	14	19	18	19	18	16	16	14	14	13	12	11	8	B	18	13	
2	16	9	10	14	13	13	9	8	14	14	15	15	19	16	19	16	21	12	13	14	13	B	B	15	
3	11	14	19	19	16	19	21	14	19	15	16	16	13	19	14	14	14	9	8	8	8	B	B	B	
4	B	11	11	8	8	B	B	16	13	20	B	27	26	19	18	19	16	13	7	8	13	B	B	B	
5	9	13	15	13	21	B	B	B	21	21	19	20	B	B	20	39	B	16	19	14	9	9	9	13	
6	9	8	20	29	19	19	19	21	B	B	B	B	B	B	B	B	24	B	B	8	9	13	9	8	
7	28	16	13	24	18	30	B	B	19	19	B	B	B	B	B	B	B	B	B	B	9	21	13	22	
8	13	25	24	24	B	B	32	B	B	B	B	B	B	B	B	B	B	B	B	16	9	19	13	19	
9	14	19	25	24	36	24	B	B	B	B	B	B	B	B	B	B	B	B	21	B	B	B	10	16	
10	9	16	19	19	19	14	14	19	19	20	20	36	23	29	B	B	14	B	20	15	15	15	16	9	
11	17	19	B	10	9	B	30	20	B	B	B	B	B	B	B	23	B	B	B	19	10	13	13	20	
12	15	B	B	B	B	B	24	B	23	19	23	B	B	B	B	B	29	14	23	B	B	B	9	13	
13	30	30	B	B	B	23	19	19	B	B	B	B	B	B	B	B	B	B	B	B	19	10	11	9	
14	20	19	A	A	20	19	19	21	15	B	B	B	B	B	20	B	24	31	31	14	B	B	7	7	
15	19	26	19	30	19	B	B	B	B	B	B	B	B	B	B	B	B	B	19	8	11	10	13	10	
16	10	19	10	14	15	33	14	19	18	19	20	B	B	B	B	B	24	25	20	19	B	B	9	9	
17	9	13	B	19	19	19	19	B	19	24	23	16	27	29	31	31	31	B	19	9	19	B	8	8	
18	8	9	9	9	18	17	9	17	19	21	23	18	21	21	30	30	30	23	13	18	14	14	14	B	
19	9	19	18	14	19	13	7	14	18	16	17	19	19	18	18	19	18	20	13	9	13	13	13	8	
20	13	11	14	19	18	14	19	17	21	B	B	B	30	20	19	19	15	15	19	18	14	9	11	8	
21	10	14	19	19	19	20	14	13	13	18	14	15	14	14	14	16	23	15	14	24	8	8	9	14	
22	14	24	18	15	19	16	13	16	17	18	15	19	16	18	15	14	13	15	13	13	14	11	9	B	
23	10	13	19	18	22	19	30	20	20	20	16	18	16	16	14	19	16	B	B	B	11	11	13	9	
24	13	14	16	19	B	B	14	15	B	29	B	B	B	B	B	B	24	20	13	17	19	14	15	9	
25	11	20	13	16	13	8	10	13	14	31	23	20	B	27	31	19	16	21	19	B	13	7	9	8	
26	8	9	10	9	9	9	B	20	24	B	B	B	30	28	B	B	B	B	B	30	19	19	23	19	
27	20	19	14	23	13	22	24	15	13	B	B	B	20	13	30	33	48	19	14	B	8	20	B	13	
28	14	14	10	7	9	10	14	20	19	21	B	B	B	B	B	B	B	B	B	B	B	B	B	19	
29	22	11	9	24	19	14	9	14	18	20	15	19	15	13	13	22	15	15	14	19	19	14	19	9	
30	8	9	19	14	14	17	18	14	14	19	B	29	24	16	19	14	40	30	B	24	20	16	B	B	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	13	14	18	19	19	19	19	19	19	21	B	B	30	28	30	32	24	24	19	18	14	16	13	13	
U Q	17	19	20	24	20	33	30	21	24	B	B	B	B	B	B	B	B	B	B	B	19	B	B	B	
L Q	9	11	10	14	13	14	14	14	15	19	18	19	19	18	18	19	16	15	13	13	9	11	9	9	

SEP. 1995 fmin (0.1MHz)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

SEP. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	A	250	A	A	A	A	240	215	200	225	235	200	205	205	200	205	200	240	200	200		B	A	A	
2	A	A	A	255	A	A	135	275	205	200	215	200	205	235	205	205	215	205	215	215	215		B	B	A	
3	250	255	245	A	A	A	A	A	255	235	210	205	220	210	210	210	205	205	205	205	205		B	B	B	
4	B	A	280	A	A	B	B	E B	220	205		B	E B	220	220	225	210	205	200	220	210	250		B	B	B
5	A	A	A	A	A	B	B	B	A	A	A	A	A	B	B	200	B	B	A	A	A	A	A	240	A	
6	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	E B	B	B	B	A	A	A	A	A	
7	A	A	A	A	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	
8	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	
9	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	Y	Y	Y	
10	A	A	A	A	A	A	A	A	245	230	200		B	E A	B	B		B	B	A	A	A	A	A	A	
11	A	A	B	A		B	A	A	B	B	B	B	B	B	B	E B	B	B	B	A	Y	A	A	A	A	
12	A	B	B	B	240	B	B	A	B	A		B	B	B	B	E B	B	B	240	245		B	B	B	A	A
13	A	A	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	
14	A	A	A	A	A	A	A	B	A	B	B	B	B	B	B	220	B	250	240	240	230		B	B	Y	A
15	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	
16	A	A	A	A	A	A	A	A	E B	260	240	240		B	B	B	B	E B	E B	E B	E B	B	B	B	A	A
17	A	245		B	A	A	A	B	A	E B	250	200	230	240	230	260	255	255		220	230	225		B	A	295
18	295	A	A	Y E B	325	B	235	240	205	200	200	200	215	210	245	250	225	205	205	210	205	230	E B	B	B	
19	A	A	A	A	A	A	230	A E A	265	240	230	210	205	205	200	210	200	205	200	200	200	235	230	250	A	
20	250	A	A	A	A	A	A	A	A	B	B	B		225	200	200	205	205	235	205	245	275		A	A	A
21	A	A	A	A	A	A	A	A	H	190	230	200	240	225	210	200	225	205	220	215		290		A	A	A
22	A	A	A	A	A	A	A	A	235	205	235	240	215	220	205	225	200	200	215	205	200	200	230	225	B	
23	A	A	215	230	A	A	A	A	A	A	205	240	220	200	240	215	210	240				240		A	A	A
24	A	A	A	A	B	B	A	A	B	E B	270	B	B	B	B	B		215	230	240	230	245	290	E B	A	A
25	A	A	A	A	A	A	A	A	A	E B	275	205	205		220	240	225	205	205	240		240		A E A	A	A
26	A	A	A	A	A	A	B	A	270	240		B	B	B	230	210		B	B	B	260	240	245	A	A	A
27	A	A	A	A	A	A	A	A	235	235		B	B	B	200	195	250	250	240		A	B	A	A	B	A
28	A	A	330	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A
29	A	A	A	A	A	A	A	A	230	200	210	190	200	215	200	200	200	200	215	230	235	240	240	250	260	A
30	215	A	A	A	A	A	A	A	225	200	200		215	200	205	215	200	250	225		230	250	230		B	B
31																										
CNT	4	2	5	3	2	3	2	10	14	17	14	13	16	16	17	15	21	17	17	16	16	7	6	3	A	
MED	250	250	250	250	282	240	185	238	214	218	208	210	216	210	212	208	210	215	220	226	239	230	248	290	A	
U Q	272		305	255		260		265	240	240	225	232	225	220	232	225	250	238	240	232	248	245	250	295	A	
L Q	232		230	230		230		235	205	202	200	202	202	202	202	200	205	205	205	208	210	230	240	260	A	

IONOSPHERIC DATA STATION SHOWA-ST.

OCT. 1995 f_{XI} (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)
 LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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		Y	A	A	A	A	X	V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2		A	A	A	A	A	R	X	X	X	X	B	X	X	X	X	X	X	B	X	X	A	A	X	X	
3		A	A	A	O	X	O	X	B	B	A	X	X	X	B	B	B	B	X	A	B	S	A	A	A	
4		A	A	A	B	B	B	S	A	A	A	A	A	O	X	B	B	B	A	A	A	A	A	A	A	
5		A	A	A	B	B	A	B	B	B	O	X	B	B	B	B	B	X	B	B	O	X	B	O	X	
6		A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	Y	A	
7		A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	46	A	B	O	X	A	B	Y	
8		A	A	A	B	B	B	B	B	B	B	B	B	O	X	B	B	B	X	X	O	X	A	A	A	
9		A	B	B	A	A	A	O	X	X	B	B	B	B	B	B	B	B	O	X	S	O	X	A	A	
10		A	B	B	A	A	B	A	B	B	B	B	B	B	B	B	O	X	B	O	X	O	X	O	X	
11		X	X	X		A	B	B	B	B	B	O	X	B	B	B	B	X	X	B	B	A	Y	A	A	
12		A	A	A	A	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	X	O	X	A	A	
13		A	A	A	B	A	A	B	O	X	O	X	O	X	O	X	B	B	X	O	X	O	X	A	A	
14		X	B	B	B	B	A	B	B	B	O	X	X	X	O	X	O	X	O	X	X	B		A	B	
15		B	B	A	B	A	O	X	O	X	X	B	B	X	X	O	X	O	X	X	O	X	O	X	X	
16		A	A	A	A	A	A	A	B	X	O	X	O	X	X	X	O	X	O	X	O	X	O	X	A	
17		A	A	A	A	A	A		Y	B	B	Y	B	B	B	B	B	O	X	B	O	X	X	S	X	
18		O	X	B	A	A	A	A	B	O	X	X	B	S	X	O	X	X	O	X	X	O	X	A	A	
19		35	B	A	A	B	B	B	B	B		Y	S	B	B	B	B	B	O	X	B	B	S	O	X	
20		A	O	X	O	X	A	S	S	B	B	B	B	O	X	B	B	B	B	B	B	B	B	B	B	
21		A	S	S	B	B	B	B	B	B	B	B	B	B	B	O	X	B	B	B	B	O	X	B	S	
22		A	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B		X	S	
23		B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	X	O	X	A	A	S	
24		A	O	X	O	X	B	B	B	B	O	X	O	X	O	X	B	B	X	O	X	X	B	B	A	
25		A	A	A	A	B	B	Y	B	B	B	B	B	B	B	O	X	B	O	X	O	X	X	X	X	
26		X	X			X	X	X	O	X	O	X	B	B	B	B	O	X	B	X	O	X	X	X	O	X
27		O	X	A	B	O	X	X	A	A	A	O	X	O	X	X	O	X	O	X	X	X	O	X	O	X
28		43	O	X	A	A	X	X	X	X	X	O	X	X	S	X	X	S	X	X	O	X	X	X	X	
29		40	A	A	A	A	X	X	X	O	X	X	X	O	X	B	B	Y	O	X	O	X	O	X	X	
30		52	X	44	O	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	B	A	S	A	
31		A	A	A	A	A	O	X	B	B	A	Y	B	B	B	B	B	O	X	O	X	O	X	X	A	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		9	6	5	6	5	7	9	11	11	13	12	12	11	10	12	14	21	20	17	21	16	13	12	10	
MED		X	X	X	O	X	X	X	O	X	O	X	X	X	X	X	X	X	X	X	X	O	X	X	X	X
U Q		50	48	46	46	54	50	52	56	58	54	57	58	58	61	66	62	65	58	54	49	46	48	47	46	
L Q		X	X	X	X	X	X	X	O	X	X	O	X	O	X	O	X	X	X	O	X	O	X	X	X	X
		34	35	30	37	42	38	40	43	44	42	42	46	45	53	50	57	50	48	46	39	34	34	40	40	

IONOSPHERIC DATA STATION SHOWA-ST.

OCT. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	Y	A	A	A	A	31	34	37	40	42	52	53	50	54	51	50	J	F	F	J	R	36	26	19	A						
2	A	A	A	A	A	D	R	31	39	37	38	40	36	39	47	38	48	50	B	48	32	A	A	R	R						
3	A	A	A	U	R	U	R	B	B	A	A	36	34	35	B	B	B	J	F	A	B	S	A	A	A						
4	A	A	A	B	B	B	S	A	A	A	A	A	A	33	B	B	B	A	A	A	A	A	A	A	A						
5	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	35	B	B	32	B	U	R	R						
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	Y	A	A						
7	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	F	A	B	31	A	B	Y	A						
8	A	A	A	B	B	B	B	B	B	B	B	B	B	U	R	B	B	J	R	S	R	A	A	A	B						
9	A	B	B	A	A	A	R	J	F	B	B	B	B	B	B	B	B	B	R	S	27	23	A	A	A						
10	A	B	B	A	A	B	A	B	B	B	B	B	B	B	B	B	U	R	B	R	45	40	37	33	29	28	26				
11	26	26	22	19	F	A	B	B	B	B	B	R	B	B	B	B	B	50	47	B	B	A	Y	A	A						
12	A	A	A	A	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	36	37	27	A	A	A	A					
13	A	A	A	B	A	A	B	R	R	R	R	R	B	B	65	58	59	59	51	28	F	A	A	A	A						
14	J	R	B	B	B	A	B	B	B	R	R	J	S	J	R	50	55	60	55	F	49	50	49	B	J	F	F	A	B		
15	B	B	A	B	A	39	41	42	B	B	B	J	R	43	50	48	55	56	59	J	F	62	51	47	45	46	36	30			
16	A	A	A	A	A	A	A	B	46	53	53	41	49	51	53	55	54	54	46	43	J	R	R	R	R	R	R	R	R		
17	A	A	A	A	A	A	F	Y	B	B	Y	B	B	B	B	B	B	R	45	36	40	41	J	S	D	S	33	31			
18	R	B	A	A	A	A	B	R	R	B	D	S	U	R	R	R	B	61	63	46	48	R	A	A	A	A	A	A			
19	F	B	A	A	B	B	B	B	B	F	Y	S	B	B	B	B	B	U	R	B	B	S	U	R	S	R	34	B			
20	A	R	R	R	A	S	S	B	B	B	B	R	37	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
21	A	S	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
22	A	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
23	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
24	A	R	R	R	B	B	B	U	R	U	R	R	R	R	R	R	B	J	S	R	46	52	52	B	B	43	23	F	B	A	A
25	A	A	A	A	B	B	Y	B	B	B	B	B	B	B	B	B	U	R	B	R	41	43	44	42	42	41	38	40	40		
26	42	42	40	41	47	50	51	52	53	B	B	B	B	B	R	42	53	59	49	45	45	43	42	42	42	42	42	42	42	42	
27	R	A	B	R	R	A	A	A	47	44	50	39	39	44	54	56	59	57	44	39	F	R	R	R	U	R	R	R	F		
28	F	R	A	A	35	44	46	50	52	U	R	D	S	42	52	52	42	51	46	44	42	38	38	37	36	36	36	32	32		
29	F	A	A	A	A	39	41	44	43	47	47	51	B	B	Y	51	48	49	52	43	B	A	S	A	U	R	R	F	F		
30	F	F	F	R	F	J	F	F	57	57	56	55	56	59	60	62	61	51	B	A	S	A	U	R	R	A	A	A	A		
31	A	A	A	A	A	R	B	B	A	Y	B	B	B	B	B	B	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
	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	6	5	6	5	8	9	11	11	13	13	13	11	10	13	14	21	20	18	21	16	14	12	10							
MED	32	37	30	38	40	40	41	42	43	42	42	44	50	52	54	52	50	48	44	38	34	37	36	35							
U Q	42	42	37	40	48	42	46	50	52	48	51	52	52	55	60	56	59	52	48	43	40	40	38	39							
L Q	25	29	25	31	36	32	34	37	38	37	36	40	39	47	42	50	44	42	40	32	28	28	34	31							

IONOSPHERIC DATA STATION SHOWA-ST.

OCT. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	14	32	44	42	33	18	E B	19	17	22	23	27	32	32	27	32	31	27	17	E B	13	E B	9	12	26	71	
2	46	41	44	52	51	42	32	22	21	28	31	B	27	27	E B	30	26	21	B	43	E B	19	42	48	48	44	
3	71	58	42	41	29	B	B	B	45	51	31	29	25	B	B	B	E B	24	21	42	B	26	71	70	70		
4	51	89	51	B	B	B	29	37	51	A	A	32	26	B	B	B	33	39	90	39	44	135	70	46			
5	47	67	37	B	B	34	B	B	B	E B	24	B	B	B	B	B	26	B	B	E B	25	B	32	37	38		
6	70	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	39	35	21	42	52		
7	49	36	58	B	B	40	B	B	B	B	B	B	B	B	B	B	26	33	B	E B	20	42	B	16	30		
8	40	35	33	B	B	B	B	B	B	B	B	B	E B	30	B	B	32	E B	28	27	23	92	91	70	B		
9	38	B	B	44	37	39	27	26	B	B	B	B	B	B	B	B	B	E B	30	33	19	22	32	33	70		
10	70	B	B	41	31	B	44	B	B	B	B	B	B	B	B	26	B	E B	E B	E B	E B	E B	E B	E B	E B	E B	
11	E B	13	14	28	16	31	B	B	B	B	B	33	B	B	B	B	E B	30	27	B	B	39	24	39	37		
12	37	80	68	46	B	29	B	B	B	B	B	B	B	B	B	B	B	B	28	E B	28	17	37	67	31		
13	80	44	41	B	39	50	B	B	26	22	25	26	27	B	E B	E B	E B	B	B	21	24	38	37	27	40		
14	32	B	B	B	B	46	B	B	B	27	27	27	27	30	27	30	30	E B	23	21	B	E B	29	30	29	B	
15	B	B	31	B	36	28	20	22	B	B	B	28	28	30	28	30	26	22	17	29	27	31	E B	E B	18		
16	39	42	46	30	38	40	41	B	E B	37	30	32	27	30	34	32	31	E B	E B	E B	E B	E B	34	33	40		
17	41	38	51	32	31	34	32	28	B	B	B	30	B	B	B	B	E B	E B	E B	E B	E B	E B	E B	E B	E B		
18	32	B	36	31	33	35	B	30	36	B	27	27	27	26	29	B	E B	E B	B	B	37	44	52	37	46	39	
19	30	B	58	71	B	B	B	B	B	26	22	33	B	B	B	B	B	E B	26	B	B	26	E B	22	27	28	
20	31	39	31	30	36	23	27	B	B	B	B	27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
21	37	34	29	B	B	B	B	B	B	B	B	B	B	B	27	B	B	B	B	E B	22	B	30	38	35		
22	70	59	B	B	B	B	B	42	B	B	B	B	B	B	B	B	B	B	B	B	B	33	41	36	40		
23	B	71	B	34	B	B	B	B	B	B	B	B	B	B	B	B	B	E B	27	35	41	41	78	74	32		
24	37	37	30	B	B	B	B	21	20	29	26	31	B	E B	B	33	23	30	B	E B	23	18	B	41	70		
25	38	41	50	37	B	B	28	B	B	B	B	B	B	B	B	27	B	E B	E B	E B	E B	E B	E B	E B	E B	12	
26	E B	13	10	E B	E B	17	18	17	27	22	E B	E B	B	B	B	B	E B	36	27	32	29	30	20	E B	E B	E B	31
27	59	49	B	37	31	42	42	43	31	34	31	33	35	33	32	32	31	29	27	27	E B	25	26	E B	19	24	
28	26	32	41	42	32	35	29	29	30	32	33	27	36	35	34	36	36	25	22	E B	E B	18	22	29	31		
29	28	37	32	36	41	34	21	29	35	32	32	30	B	B	27	29	30	37	29	39	39	26	E B	E B	19		
30	E B	E B	B	18	33	36	32	36	32	32	33	36	32	70	39	40	41	32	26	21	B	70	42	48	41	38	
31	70	70	70	78	41	26	B	B	37	31	B	B	B	B	B	27	27	27	27	33	33	28	31	70	41		
	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	24	24	20	18	19	15	16	14	14	15	15	11	10	14	14	22	22	21	25	28	28	30	28			
MED	38	40	41	37	33	35	29	28	32	30	30	28	30	32	29	30	30	26	28	E B	24	27	31	34	38		
U Q	55	58	50	43	38	40	32	38	37	32	32	32	35	35	33	32	31	29	34	36	40	39	46	42			
L Q	30	34	32	32	31	28	22	24	22	26	27	27	27	30	27	27	26	24	22	E B	E B	E B	E B	E B	E B	30	

IONOSPHERIC DATA STATION SHOWA-ST.

OCT. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	8	29	15	14	11	11	19	13	14	14	13	13	15	14	14	13	14	14	9	13	9	12	19	7	
2	18	24	19	19	20	15	17	13	15	10	15		25	22	30	24	11		16	19	10	11	7	7	
3	7	20	14	16	19			26	23	19	16	19					24	19	12		6	7	19	16	
4	19	13	24				24	21	20			20	24				20	6	14	14	19	15	14	30	
5	19	19	21			24				24							20			25		13	13	13	
6	24																				13	10	16	10	16
7	18	13	24			20											19	21		20	13		14	13	
8	13	30	13										30				20	28	20	17	30	19	8		
9	26			14	19	20	19	19										30	18	19	18	21	20	13	
10	10			21	20		25									21		36	30	24	20	18	11	11	
11	13	9	8	11	11						30						30	20			13	9	9	9	
12	11	19	20	30		19													19	28	13	9	16	13	
13	12	17	19		22	24		20	18	18	20	22			48	34	33		18	24	18	16	14	16	
14	24					19					24	24	22	24	24	20	19	18	23	18		29	13	7	
15			24		23	19	19	18				19	19	19	18	23	18	18	15	13	19	23	19	18	
16	16	20	19	16	19	18	20		37	24	19	18	21	18	18	18	15	24	21	24	24	19	19	19	
17	19	19	19	19	39	19	19	19			24						29	29	29	24	24	24	19	18	
18	13		24	22	18	19		22	20		20	23	25	23	19		26	24	30	16	13	13	19	17	
19	13		21	21							20	19	20					26			24	22	19	16	
20	16	19	23	13	17	19	24					21													
21	20	27	19													25					22		19	18	22
22	19	19						29														18	17	19	18
23		44		17															27	18	18	19	18	35	18
24	21	17	10					18	19	18	19	29			33		18			23	18		10	13	
25	22	17	28	19			24									19		27	27	24	19	19	18	9	12
26	13	8	17	18	14	13	19	38	39					36		18	18	18	18	18	9	16	18	18	
27	18	18		19	23	19	19	17	17	13	19	18	17	14	19	18	15	13	13	13	25	26	19	12	
28	10	14	34	15	15	16	13	14	14	13	14	18	15	15	17	16	19	18	14	20	18	13	9	8	
29	8	9	8	23	20	13	14	13	13	14	13	14			24	23	25	19	24	19	19	16	16	19	
30	18	18	13	13	9	14	13	14	16	18	14	15	17	16	18	18	18	16		29	19	19	13	16	
31	13	12	18	20	23	18			19	19						24	27	17	18	16	17	18	23	16	
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	31	31	31	31	31	31	31	31	31	30	30	31	30	31	31	30	31	31	31	31	31	31	31	31	
MED	18	19	21	21	23	20		38									25	26	21	20	19	18	16	16	
UQ	20	44	34																	28	24	21	19	18	
LQ	13	17	17	16	19	18	19	18	19	18	19	19	24	23	19	21	18	18	18	17	13	13	10	13	

IONOSPHERIC DATA STATION SHOWA-ST.

OCT. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	Y	A	A	A	A	A	225	195	220	195	220	210	190	215	210	200	200	200	A	205	200	205	210	250	A		
2	A	A	A	A	A	210	A	245	205	205	200	BE	S	250	220	245	205	200	B	230	255	A	A	A	270		
3	A	A	A	A	A	B	B	A	A	A	A	A	E	A	B	B	B	B	A	B	A	A	A	A	A		
4	A	A	A	B	B	B	A	A	A	A	A	A	S	B	B	B	A	A	A	A	A	A	A	A	A		
5	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	240	230	A		
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A		
7	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	B	B	A	B	A	A	A		
8	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	BE	AE	B	A	A	A	A	A	B		
9	A	B	B	A	A	A	A	A	B	B	B	B	B	B	B	B	BE	B	A	B	A	A	A	A	A		
10	A	B	B	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B	A		
11	E	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	BE	S	B	B	A	A	A	A	A		
12	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	BE	AE	BE	BE	A	A	A	A	
13	A	A	A	B	A	A	B	A	210	225	210	200	B	B	B	B	250	245	B	245	250	A	A	A	A		
14	A	B	B	B	B	A	B	B	B	A	235	205	220	S	S	220	230	200	220	220	BE	BE	A	A	B		
15	B	B	A	B	A	A	240	200	B	B	B	B	B	B	B	B	A	S	A	S	250	255	A	A	A		
16	A	A	A	A	A	A	A	B	B	200	200	240	B	205	220	200	220	240	235	220	235	E	B	A	A	A	
17	A	A	A	A	A	A	210	A	B	B	A	B	B	B	B	B	B	B	E	BE	BE	BE	BE	BE	BE	B	
18	A	B	A	A	A	A	BE	A	A	B	230	235	220	250	205	S	BE	BE	B	A	250	A	A	A	A		
19	A	B	A	A	B	B	B	B	B	235	Y	A	B	B	B	B	BE	B	B	B	B	S	B	A	A		
20	AE	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
21	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	BE	B	B	A	A	A	
22	A	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	
23	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	BE	B	A	A	A	A	A	A	
24	A	AE	A	B	B	B	B	245	200	210	AE	S	B	B	220	200	240	B	BE	BE	BE	B	B	A	A		
25	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E	B
26	245	250	250	260	255	240	225	B	B	B	B	B	BE	B	B	200	210	200	205	230	230	240	215	255	A		
27	240	A	B	A	A	A	A	A	205	200	225	205	220	200	205	205	200	210	210	225	270	245	250	250	A		
28	A	240	A	A	A	A	240	210	200	200	210	210	200	200	210	205	200	220	220	210	225	230	240	240	A		
29	285	A	A	A	A	A	240	220	230	205	205	200	B	B	A	215	230	245	250	250	B	A	A	A	A		
30	E	BE	BE	BE	B	A	270	250	240	225	210	200	205	205	215	215	210	220	210	210	215	A	240	A	A		
31	A	A	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	E	A	A	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	5	4	3	2	2	3	7	9	8	13	12	13	11	9	12	14	20	20	15	19	14	13	12	9			
MED	252	248	E	250	262	240	240	222	208	200	210	208	218	215	212	212	229	U	221	225	242	U	235	242	248	255	
U Q	280	255	E	295	250	240	248	215	208	228	238	250	235	220	230	240	262	E	250	255	270	E	252	250	265		
L Q	242	245	E	245	210	225	205	202	200	202	205	205	202	208	205	205	210	210	230	230	230	235	240	248			

OCT. 1995 h'F (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

NOV. 1995 f_{XI} (0.1MHz)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	B	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	X		X	S	B	A	
2	A	A	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	X	O	X	X		A	
3	S	S	B	A	S	X	X	X	X	X	X	B	B	B	B	B	X	B	X	B	X	X		S	
4	X	34	38	38	43	48	47	48	52		B	B	B	X	B	X	65	69	65	57	S	X	X	A	
5	A	A		O	X	40	B	A	A	A	X	X	B	X	B	X	X	X	X	X	A	X	A	A	
6	X	34	B	A	S	B	B	A	B	A	B	B	B	B	B	B	B	B	X	A	A	A	S	A	
7	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	X	B	X	X	X	X	
8	X	44	A	O	X	B	B	A	B	A	B	S	B	Y	X	X	X	X	X	X	X	X	X	X	
9	A	B	A	B	B	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B	
10	35	O	X	A	O	X	S	X	B	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11	32	36	A	58	A	S	A	B	Y		66	64	61	63	64	58	57	53	52	51	49	51	50	43	45
12	A	B	A	B	O	X	B	A	A	B	S	O	X	X	B	O	X	X	B	B	B	O	X	X	A
13	X	44	X	X	X	X	V	O	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	37	X	O	X	X	B	A	A	O	X	X	X	X	X	X	X	X	X	S	X	O	X	X	X	X
15	35	A	A	B	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16	X	59	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
17	48	48	49	B	43	A	B	O	X	S	O	X	X	X	Y	O	X	X	X	X	X	X	X	X	X
18	O	X	X	O	X	B	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
19	A	O	X	X	A	B	O	X	Y	B	B	B	B	X	X	X	X	X	X	X	X	X	X	X	X
20	A	A	O	X	S	B	O	X	X	X	X	X	X	B	B	O	X	Y	B	O	X	X	X	X	X
21	42	A	44	A	A	A	O	X	X	X	X	X	X	X	X	X	X	X	S	X	X	X	X	X	X
22	Y	O	X	A	S	A	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23	S	O	X	A	B	A	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24	S	A	O	X	O	X	A	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
25	O	X	43	46	47	45	A	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26	O	X	48	53	48	48	S	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
27	O	X	54	51	53	63	58	62	63	65	62	65	70	B	X	O	X	X	Y	X	A	A	S	A	
28	B	A	B	A	A	O	X	A	A	A	X	B	O	X	B	B	B	B	O	X	O	X	X	X	X
29	A	O	X	B	S	B	S	O	X	X	X	X	X	S	B	B	B	X	69	68	64	43	40	44	49
30	X	B	A	O	X	A	A	Y	B	B	B	B	B	X	X	B	B	B	B	B	O	X	X	X	X
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	16	15	15	13	9	16	16	19	18	20	21	17	20	20	21	21	21	19	28	24	27	25	23	20	
MED	X	X	X	X	O	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
U Q	48	52	52	54	55	54	59	62	62	66	66	66	64	64	64	59	58	55	52	50	50	49	48	48	
L Q	35	38	42	44	43	46	50	52	54	56	58	58	57	58	56	54	53	52	49	48	46	43	39	38	

NOV. 1995 f_{XI} (0.1MHz)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION SHOWA-ST.

NOV. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S ION. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1		A	B	Y	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	U	R	J	F	S	B	A			
2		A	A	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	R	R	38	35	35	F	A			
3		S	S	B	A	S			R	J	R	R	R	B	B	B	B	R	B	R	R	B	R	J	F	S			
4		U	S	F	F	F	F	R	R	R	R	B	B	B	B	J	R	F	U	R	S	S	R	R	A	A			
5		A	A	F	R	F	B	A	A	A	J	S	R	B	B	R	R	R	A	A	A	A	A	A	A	A			
6			B	A	S	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B		A	A	A	S	A			
7		S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B					R			
8		U	R	A	R	B	B	A	B	A	B	S	B	Y			R	R	B	B	R		45	38	30	28			
9		A	B	A	B	B	R	R	F	F				R	R	U	R	R	R			46	41	37	30	28			
10		F	R	A	R	S	J	A	B	Y	F	F		R	R	U	R	R	R			42	42	42	28	F	B		
11		F	U	R	A	F	A	S	A	B	Y	F	F				U	R	U	R	R					R			
12		A	B	A	B									50	54	51	48									R			
13		R	38	36	36	41	44	48	48	51	51	49	50	54	50	52	52	52	51	52	47	45	42	30	29	31			
14		F	29	32	U	S	J	S	B	A	A	R	F				J	R	D	S			42	44	39	42	F		
15		F	28	A	A	B			F	F	F						R	J	R	R	R	J	R			47			
16		52	54	54	53	52	53	51	51	56	60	59	60	J	R	R	J	R	R			48	50	50	46	45	43	42	39
17		F	39	38	37	32			F	D	S	R	F			Y		R					40	41	40	40			
18		R	49	42	43	43			F	F	F						F						44	43	40	37			
19		A	50	46					R	Y	B	B		J	R		R	D	S	R	R		44	43	40	37			
20		A	A	R	S	B	R	R									R	Y	B				43	43	43	42			
21		F	33	A	F	A	A	A						J	S				D	S			41	45	42	47	41	42	45
22		Y		R	A	S	A	R	44	51	57	60	58	60	62	60	63	59	60	46	43	44	38	41	39	34			
23		D	S	R	A	B	A	R						R	D	S	R		R	U	S	S	R				F		
24		S	A	F	S	F	A	R	R	R	R			R									42	43	42	41	27		
25		U	R	F	R	A	R	R	R					R	R	R	J	R	R					J	R	J	R	R	
26		42	43	38	42	S	J	F	F	F	40	47	50	52	65	67	59	53	53	52	50	45	45	42	42	43	42	42	
27		R	J	R	R	F	F	F	F	F				B						R	Y		A	A	A	S	A		
28		B	A	B	A	A			A	A	A			B	R	B	B	B	B	R	R	R	R	R	R	A	A		
29		A	38	B	S	B	S	R	R		D	S	B	B	B	B		F	B	B	B	R	F	Y		R	J	R	
30		36		A		A	A	Y	B	B	B	B	B					B	B	B	B	B	R	R					
31														50	47								47	42	37	41	41		
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT		17	15	15	13	9	16	16	19	19	21	21	17	21	20	22	21	22	20	28	24	27	26	23	20				
MED		37	38	37	41	42	44	48	50	52	54	53	55	54	54	52	52	50	48	45	42	43	41	40	39				
U Q		40	45	46	42	48	48	51	53	56	59	59	60	58	58	58	53	52	49	46	44	44	43	42	42				
L Q		28	30	35	38	34	40	44	46	47	49	52	52	50	52	50	48	47	46	43	42	40	37	30	32				

IONOSPHERIC DATA STATION SHOWA-ST.

NOV. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	42	B	30	B	B	B	B	B	B	B	B	B	B	B	B	B	35	B	31	36	21	33	B	43			
2	39	34	B	B	B	42	A	A	B	B	B	B	B	B	B	B	B	B	31	E B	23	39	34	31	36		
3	33	31	B	35	30	23	26	E B	24	26	25	27	B	B	B	B	E B	26	E B	B	E B	E B	E B	22	22		
4	27	31	30	27	17	20	22	22	26	B	B	B	27	B	27	25	26	E B	25	30	24	33	31	38	34		
5	35	39	42	31	27	B	36	41	42	29	E B	33	B	27	30	28	25	21	35	36	22	42	42	70			
6	59	B	41	35	B	B	40	B	38	B	B	B	B	B	B	B	B	B	22	38	40	41	28	41			
7	33	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	36	B	35	34	17	36			
8	42	40	32	B	B	41	B	40	B	32	B	31	28	26	E B	E B	30	B	E B	25	22	E B	19	17	16	29	
9	37	B	50	B	B	40	30	29	29	31	27	31	30	30	28	27	34	31	23	21	23	16	E B	B			
10	19	27	37	35	37	37	B	37	27	31	27	28	29	28	31	40	30	41	31	23	23	47	E B	E B	17		
11	E B	E B	B	B	46	33	41	B	31	32	34	30	22	34	31	45	24	29	22	35	40	30	17	40			
12	42	B	42	B	30	B	41	49	B	34	28	28	B	E B	E B	B	B	B	21	22	30	41	70	39			
13	41	29	22	20	26	32	22	30	27	31	42	36	33	39	37	43	34	30	27	31	28	20	E B	28	31		
14	26	22	37	32	B	41	41	36	31	34	31	31	31	34	29	28	41	31	22	33	35	26	E B	17	28		
15	32	93	42	B	36	37	34	31	E B	49	28	28	28	29	32	27	30	29	26	21	E B	E B	E B	16	28		
16	20	E B	E B	B	26	21	28	24	32	16	30	33	40	32	30	29	32	44	51	32	31	24	E B	E B	17		
17	E B	17	30	29	B	30	50	B	38	31	32	41	28	29	31	35	27	31	31	31	23	19	18	E B	21		
18	29	42	42	42	B	35	26	30	31	28	30	B	30	35	23	28	27	29	22	E B	22	21	26	E B	18	21	
19	46	48	39	70	B	31	26	B	B	B	27	30	30	32	28	28	30	21	28	E B	24	27	E B	31	39		
20	42	59	41	39	B	41	32	25	31	27	28	B	E B	E B	B	B	30	E B	E B	E B	28	29	E B	21	26	E B	17
21	31	39	39	70	43	43	34	30	31	27	27	27	27	27	33	28	27	26	21	22	E B	21	18	24	27		
22	32	42	46	33	41	32	41	28	47	31	32	34	21	31	36	33	27	24	26	34	37	32	27	39			
23	39	39	70	B	41	32	29	30	26	31	30	41	29	24	38	29	28	37	38	27	23	34	22	30			
24	31	42	43	36	39	48	39	30	31	33	32	51	37	31	39	38	41	31	41	26	31	31	30	22			
25	22	28	30	40	45	22	48	40	41	34	32	36	34	45	31	37	35	58	30	30	35	31	42	42			
26	42	41	36	32	41	53	32	38	33	33	35	38	32	33	32	39	35	31	31	28	26	36	30	31			
27	44	31	21	31	27	33	59	30	34	37	34	B	29	38	B	34	42	31	42	43	43	69	35	70			
28	B	41	B	40	40	36	42	40	39	35	B	27	B	B	B	B	27	26	26	21	35	28	42	42			
29	42	31	B	32	B	40	36	37	27	28	B	B	B	E B	E B	E B	B	B	58	27	33	E B	24	31	35		
30	41	B	41	42	42	40	30	B	B	B	B	B	33	31	B	B	B	B	E B	E B	24	27	27	E B	19		
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	29	24	25	21	19	25	24	23	23	23	21	18	21	21	22	21	23	21	29	28	30	30	29	29			
MED	35	36	39	35	37	37	34	30	31	31	30	31	29	32	30	30	30	30	29	26	28	29	27	31			
U Q	42	42	42	40	41	41	41	38	38	33	34	36	32	36	35	38	35	31	35	32	35	34	31	40			
L Q	28	30	30	32	27	32	28	29	27	28	28	28	28	30	28	28	27	26	22	23	23	21	E B	17	22		

IONOSPHERIC DATA STATION SHOWA-ST.

NOV. 1995 fmin (0.1MHz) 45° E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4' S LON. 039°35.4' E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	12	B	20	B	B	B	B	B	B	B	B	B	B	B	B	B	18	B	24	21	17	24	B	18	
2	13	17	B	B	B	18	A	A	B	B	B	B	B	B	B	B	B	B	18	23	14	13	16	13	
3	18	17	B	23	20	15	19	24	17	16	19	B	B	B	B	B	26	B	35	B	24	17	9	13	
4	4	13	13	13	13	13	16	20	19	B	B	B	19	B	19	23	19	25	19	16	18	13	13	19	
5	20	12	13	24	16	B	23	19	24	17	33	B	20	B	19	24	18	19	12	24	18	16	17	12	
6	13	B	19	20	B	B	24	B	24	B	B	B	B	B	B	B	B	B	20	18	18	18	19	19	
7	24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	19	B	19	14	13	13	
8	13	19	21	B	B	25	B	34	B	21	B	24	19	20	33	30	B	B	25	19	19	13	13	13	
9	13	B	14	B	B	21	19	16	19	19	19	19	19	20	24	18	19	16	18	13	20	13	14	B	
10	14	14	17	23	20	21	B	20	22	16	18	14	18	19	19	20	19	16	20	21	19	18	19	17	
11	17	17	27	9	13	21	23	B	24	19	15	16	18	18	19	16	19	20	17	13	18	15	17	13	
12	20	B	20	B	19	B	14	19	B	23	18	19	B	50	51	B	B	B	19	19	21	12	13	14	
13	18	19	19	18	13	15	14	16	18	18	20	21	19	20	19	21	18	15	18	19	13	20	18	19	
14	13	10	13	17	B	19	24	13	20	20	20	19	19	18	23	20	19	19	19	16	18	13	17	14	
15	13	19	25	B	24	18	16	18	49	24	26	19	24	20	23	20	19	17	19	23	22	18	13	12	
16	8	14	14	13	13	18	18	19	19	13	13	23	23	24	23	19	18	19	19	17	14	13	14	17	
17	17	13	13	B	24	19	B	21	20	19	18	23	20	24	20	23	22	19	24	21	13	15	16	12	
18	12	12	23	12	B	20	16	20	19	24	23	B	19	26	21	17	18	18	18	22	18	15	18	9	
19	18	12	18	17	B	20	19	B	B	B	22	19	21	24	24	19	17	19	17	24	19	23	9	14	
20	19	18	20	27	B	20	19	20	18	18	18	B	B	47	24	B	26	30	26	24	21	21	14	17	
21	11	19	13	24	24	14	14	13	18	13	20	24	13	19	19	24	20	21	17	14	21	13	13	8	
22	16	14	19	21	20	16	13	18	13	13	16	18	19	19	19	18	19	18	19	12	19	18	20	13	
23	13	16	20	B	17	12	18	15	13	13	13	19	19	18	18	20	20	16	12	13	18	13	8	19	
24	23	13	13	19	14	17	14	13	13	14	17	19	19	18	17	13	14	13	13	13	16	17	19	8	
25	9	12	14	21	19	13	13	13	14	16	13	13	19	17	13	16	13	19	13	13	13	13	10	12	
26	12	13	17	13	19	17	14	13	12	14	13	14	13	13	15	17	13	17	13	13	14	14	14	13	
27	13	9	12	11	16	18	19	20	19	20	18	B	24	13	B	13	15	15	13	13	13	19	13	24	
28	B	20	B	13	23	18	16	20	24	22	B	20	B	B	B	B	19	24	13	15	12	18	16	19	
29	19	20	B	23	B	34	19	19	20	19	B	B	B	B	35	34	B	B	B	20	23	17	24	19	19
30	13	B	20	14	24	20	24	B	B	B	B	B	21	26	B	B	B	B	B	24	24	19	19	19	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	13	17	19	22	24	19	19	20	20	19	20	23	20	24	23	22	19	19	19	19	18	16	15	14	
U Q	18	20	23	B	B	21	24	29	49	24	B	B	B	B	B	B	26	B	B	20	23	19	18	19	
L Q	13	13	14	14	17	17	15	16	18	16	18	19	19	19	19	18	18	17	17	13	14	13	13	13	

IONOSPHERIC DATA STATION SHOWA-ST.

NOV. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	E A	A	A	A	B	A		
2	A	A	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	A	E B	A	A	A	A		
3	A	A	B	A	A	E A	A						B	B	B	B		B	B	B	E B	E B	E B	A		
4	E A	A	A	A	250	235	220	210	200				200		B	205	220	210	E B	A	A	A	E A	A		
5	A	A			E A	B	A	A	A				B		B					A	A	E A	A	A		
6	235	B	A	A	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B		A	A	A	A		
7	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		B					
8	240	E A	A	B	B	A	B	A	B	A	B		205	200	220	235	205		B	B	210	240	240	240	250	260
9	A	B	A	B	B	A																				
10	A	A	A	A	A	A	B	A												A	205	220	240	A	E B	E B
11	E B	E B	B	A	A	A	A	B	A												A	A	A	A	A	
12	A	B	A	B	A	B	A	A	B	A																
13	A	A	A	A	E A	A	A								E A											
14	A	E A	A	A	A	B	A	A	A																	
15	A	A	A	B	A		A																			
16	E A	E B	E B	B	S	245	240	225	215	205	210	200	200							A	E A	A	A	A		
17	250	255	225	225	B	E A	A	B	A	E A																
18	A	A	A	A	B	A	A	A	A																	
19	A	225	240	A	B	E B	B	B	B																	
20	A	A	A	A	B	A	E A	A	H																	
21	A	A	E A	A	A	A	A	A																		
22	A	E A	A	A	S	A	A																			
23	240	240																								
24	S	A	A	A	A	A																				
25	250	E A	A	A	A	A																				
26	250	255	250	250	A	210	255	260	210	215	200	200	200	205	205	200	200	200	200	200	225	230	230	240		
27	250	240	240	245	225	210	245	225	210		200		220	215		240	260		240							
28	B	A	B	A	A	A	A	A	A	A	B															
29	A	A	B	A	B	A	A	A																		
30	A	B	A	A	A	A	A	B	B	B	B	B	A	A	B	B	B	B	B	B						
31																										
CNT	11	12	8	7	7	10	13	15	18	18	20	17	19	17	21	21	22	17	25	23	24	24	21	18		
MED	245	245	235	245	U	238	206	222	205	206	205	202	200	200	208	208	205	205	208	215	218	234	235	245	244	
U Q	E A	E			E A	E														A	E	A	E	B	E	A
L Q	240	240	230	225	245	200	212	200	200	200	200	200	200	205	205	200	200	200	205	210	228	230	240	250		

IONOSPHERIC DATA STATION SHOWA-ST.

DEC. 1995 foF2 (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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		
D																										
1	43	A	A	A	RJ	R	F	F									JRU	US	B	Y	F	S	S	A		
2	UR	S	A	A	B	A	A	AD	S								UR	UR	UR	UR	R	Y	Y	R		
3	DS		Y	R	Y	S	UR										DS	R					J	S	Y	
4	B	Y	R	B	B	B	B	B	B	B	B	B	B	B	B	B	JR	B	R		J	S	40	41	41	
5	A	A	A		A	A	R		JR		JRD	SJR	R	R	R	R	R	R	R	R	R	42	41	43	34	
6	DS	36	36	42	45	53	56	59	62	66	63	57	55	53	52	52	J	S	51	49	46	43	42	42	43	
7	UR	48	Y	J	F	F	F	F	F	F	F	F	F	F	F	F	R		F	46	46	40	39	41	40	
8	R	49	R	F	F	F	F	F	F	F	F	F	F	F	F	F										
9	F	40	49	48	46	53	62	56	63	73	67	60	62	53	52	50	48	48	47	44	43	43	43	42		
10	F	33	32	49	F	A	A	A	B		R	R	R	R	R	R	UR	UR	F	J	S	U	S	R		
11	F	33	37	B	A	F	B	A	A	A	B	R	R	R	R	R	UR	UR	F	J	S	U	S	UR		
12	47	53	35	41	49	58		47	57	50	49	51	48	49		53	53	45	47	44	47	44	42	41		
13	JR	41	33	37	51	42	55	62	67	72	69	76	66		58	53	56	51	53	50	52	56	48	33		
14	44		A	A	AD	S	32	46	50	50	47	46	39	48	42	51		47	46	42	41	43	41	37		
15	37	41	F	F	F	A	A	A	48	49	52	49	52	49	52	52	52	49	52	53	51	49	54	36		
16	F	29	A	A	S	U	S	47	52	53	56	55	55	65	68	68	72	75	71	63	50	44	42			
17	S	44	R	S	A	A	J	S	B	A	B	B	B	B	B	B	37	38	38	49	40	40	37	38	41	
18	A	40	F	F	J	S	J	F		U	R	Y	B	B	B	B	B	B	45	44	41	42	41	38	41	
19	40		B	A	A	A	R		39	44	48	52	55	53	52	44	49	47	46	44	44	36	46	45	40	37
20	R	38	32	33	B	B	B	A	J	R	J	R	B	B	B	50	52	45	47	48	49	46	34	32		
21	36	36	F	J	S	F	47	51	50	47	52	50	47	49	R	A	47	50	49	48	46	46	43	41	42	
22	41	43	47	43	47	48	48	49	50	48	49	44	44		46	49	43	42	47	43	42	A	A	A	A	
23	A	A	A	F	A	A	A	A	A	A	A	B	B	R	B	B	B	B	R	A	A	A	A	A	F	
24	B	R	A	A	A	S	R	U	R	A	Y	R	R	R	R	R	R	R	49	49	46	41	38	39	40	
25	34	35	B	A	A	A	A	A	A	40	Y	B	B	B	R	48	51	64	43			38	R	A	A	
26	F	30	B	B	B	B	B	R	A	B	B	B	B	B	B	B	B	B	UR	UR	B	34	42			
27	A	A	B	B	B	A	R	R	UR	S	J	S	54	Y	Y	B	UR		DS		R	UR	R	R	F	
28	Y	R	37	42	R	50	58	62	61	64	58	58	57	53	51	49	47	48	46	41	42	43	44	42		
29	F	36	47	B	R	A	48	52	62	62	62	58	54	50	49	49	49	49	49	49	49	48	49	50	37	
30	SUR	B	B	R	B	F	J	S	F	F	F	F	58	62	56	51	53	55	58	R	A	UR	R	R		
31	47	50	55	41	48	46	53	61	61	61		74	69	52	R	A	UR	JR	B	R	B	J	S	BD	S	
	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	20	12	16	14	14	19	22	22	23	23	23	22	24	20	27	27	26	27	25	27	25	23	25		
MED	40	39	40	42	46	48	50	51	56	52	52	54	54	50	52	52	50	48	46	44	43	43	42	40		
UQ	44	46	48	46	47	53	56	56	61	62	58	60	57	52	54	53	52	49	49	46	47	44	46	42		
LQ	F	F	F	F	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	F		
	36	36	37	40	42	43	46	47	48	47	49	49	48	48	49	49	47	44	44	41	41	41	40	36		

IONOSPHERIC DATA STATION SHOWA-ST.

DEC. 1995 ftEs (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	31	71	70	46	31	36	31	31	31	27	29	28	31	36	27	28	E B 50	31	B	28	31	31	42	43	
2	37	38	54	41	B	46	42	44	31	32	29	28	18	27	E B E B 40 30	E B 29	29	30	E B 23	30	32	37	42		
3	22	30	32	29	36	43	41	38	30	32	30	28	30	27	E B E B 33 34	25	28	24	24	E B E B 23	29	28	36		
4	B	39	42	B	B	B	B	B	B	B	B	B	B	B	B	E B 31	B	34	27	33	33	49	44		
5	41	47	43	31	44	46	32	59	32	32	31	37	32	29	38	27	32	26	27	16	37	32	26	29	
6	38	37	31	39	19	22	27	30	31	40	34	33	28	34	42	32	37	31	30	26	23	31	27	24	
7	E B 18	32	36	37	32	51	42	39	31	34	36	37	31	31	36	32	33	40	38	32	19	29	E B 22	21	
8	E B E B 21	20	27	26	31	28	32	27	27	21	28	48	41	32	41	31	28	23	23	23	24	32	30	E B 23	
9	16	32	38	70	53	52	66	B	B	B	32	32	32	32	28	28	E B 33	33	37	51	51	42	42	48	
10	32	37	B	41	41	B	52	55	53	B	36	37	44	105	47	42	29	27	25	21	35	29	48	32	
11	22	32	58	46	37	42	59	42	42	31	34	32	39	48	58	59	32	33	31	26	33	44	48	53	
12	26	38	39	27	28	28	29	34	30	39	44	71	53	71	47	59	71	31	31	28	27	40	41	32	
13	39	80	58	40	42	42	31	30	32	32	32	28	41	33	52	33	41	30	38	24	31	26	21	23	
14	17	29	28	31	36	51	51	52	32	33	32	37	38	42	38	32	34	40	48	29	26	21	20	34	
15	34	58	59	42	48	38	32	32	35	37	39	39	59	53	42	30	34	E B 31	36	46	70	40	46	48	
16	39	37	41	44	60	26	B	51	B	B	B	B	B	B	B	B	32	37	37	38	40	39	38	51	44
17	44	39	38	33	45	28	49	33	27	E B 29	33	B	B	B	B	B	B	B	32	27	43	38	38	37	30
18	43	B	41	47	52	46	39	26	26	32	33	31	41	31	32	30	27	27	26	27	E B E B 24	30	24	27	
19	29	38	B	42	B	B	42	38	31	32	33	B	B	B	31	27	26	31	31	32	29	32	26	26	
20	38	32	31	30	29	22	36	40	32	41	42	35	40	41	70	34	31	29	E B 27	40	33	68	E B E B 19	19	
21	27	30	30	40	48	39	41	39	41	E B 15	33	36	41	66	33	33	31	32	32	29	29	80	46	42	
22	70	59	60	51	51	40	43	47	52	80	44	B	B	26	B	B	B	31	41	51	80	90	59	38	
23	B	43	70	70	71	32	34	37	49	37	32	33	31	34	32	26	26	27	31	26	31	30	29	30	
24	39	38	B	43	70	42	49	51	60	28	33	B	B	27	36	32	40	44	51	44	41	C	59	53	
25	58	B	B	B	B	B	B	40	51	B	B	B	B	27	B	35	31	E B 30	26	B	26	38	46	47	
26	48	59	67	59	43	B	41	B	B	B	B	B	E B 33	B	B	B	B	B	B	B	31	38	E B 23	36	
27	43	38	B	B	B	42	31	28	28	29	30	24	24	E B 33	B	26	28	E B 29	27	27	42	22	21	31	
28	31	26	31	27	32	22	38	30	32	30	39	33	41	36	27	32	30	26	26	22	27	22	27	18	
29	32	22	B	36	44	47	27	24	28	27	38	36	32	31	34	37	36	32	23	50	27	22	19	30	
30	38	37	B	B	34	B	43	30	32	34	30	29	30	31	33	37	33	70	33	38	46	18	33	33	
31	E B 17	30	32	32	60	39	27	39	32	34	B	37	38	41	60	51	32	B	27	E B 29	B	22	B	40	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	24	27	26	25	28	28	27	26	26	23	23	27	24	27	28	28	29	29	30	30	30	31	
MED	34	37	40	40	42	40	40	38	32	32	33	33	38	33	36	32	32	31	31	28	31	32	32	33	
U Q	40	41	58	46	51	46	43	43	41	37	36	37	41	41	44	35	35	32	36	40	38	38	46	43	
L Q	24	31	32	31	32	28	32	30	30	29	31	29	31	31	32	30	29	28	26	25	27	29	24	27	

IONOSPHERIC DATA STATION SHOWA-ST.

DEC. 1995 fmin (0.1MHz) 45°E MEAN TIME (G.M.T. + 3 H)

LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC 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	20	20	16	18	18	19	21	19	19	19	19	20	20	20	21	20	50	16	B	19	14	13	13	13
2	13	13	14	29	B	20	19	17	18	16	18	18	12	18	40	30	29	15	13	23	19	15	23	13
3	12	13	28	24	19	17	24	13	13	15	20	19	19	24	33	34	17	19	19	22	23	29	17	20
4	B	19	19	B	B	B	B	B	B	B	B	B	B	B	B	B	31	B	24	21	14	18	9	15
5	8	19	24	13	24	15	13	14	13	14	14	19	19	16	19	19	19	16	12	13	13	13	13	10
6	13	19	14	16	13	17	13	14	14	16	14	16	14	19	18	18	18	14	14	14	15	13	10	8
7	18	10	24	14	13	13	4	9	14	13	18	19	19	19	13	14	14	20	14	13	13	11	22	13
8	21	20	9	15	17	13	13	20	20	20	19	16	20	20	19	20	20	19	13	13	15	14	13	23
9	8	13	18	18	23	19	18	B	B	B	23	20	19	20	20	18	33	23	25	20	19	19	19	13
10	14	12	B	20	19	B	30	19	19	B	24	19	19	14	19	19	14	19	18	19	14	14	13	13
11	9	13	19	19	16	19	23	16	13	14	14	19	14	13	13	18	19	19	16	13	9	16	14	13
12	8	9	13	13	13	13	19	13	16	14	14	14	18	13	13	19	14	13	14	9	13	14	19	13
13	18	19	15	13	18	14	14	13	13	14	14	19	15	18	18	19	19	15	13	13	11	13	14	9
14	14	11	10	10	13	19	20	13	14	13	14	14	12	15	14	15	16	14	14	10	13	10	12	9
15	9	14	23	20	6	13	11	11	14	13	13	15	16	12	10	13	13	31	14	19	21	13	13	11
16	6	16	8	13	19	13	B	18	B	B	B	B	B	B	B	19	29	30	18	11	19	14	13	11
17	14	9	13	13	9	20	13	19	18	29	30	B	B	B	B	B	B	16	15	21	18	13	18	14
18	13	B	18	19	16	19	19	14	14	19	14	24	20	19	14	23	20	13	19	19	24	30	24	14
19	13	13	B	19	B	B	18	14	13	18	13	B	B	B	17	19	15	14	19	24	23	15	10	10
20	14	11	15	14	10	17	14	19	6	11	26	17	14	19	26	14	14	16	27	18	14	19	19	19
21	13	13	14	9	7	14	8	11	13	15	14	19	20	19	11	13	13	11	19	13	13	13	13	20
22	13	13	13	14	11	14	14	14	14	19	19	B	B	24	B	B	B	23	28	20	14	14	14	13
23	B	19	19	16	16	19	14	13	13	19	13	13	13	13	14	11	18	16	16	16	13	13	9	14
24	13	16	B	22	18	19	19	18	15	18	24	B	B	23	22	19	16	19	13	13	15	C	18	13
25	19	B	B	B	B	B	B	20	20	B	B	B	B	19	B	21	19	30	18	B	6	6	14	20
26	19	23	27	19	19	B	23	B	B	23	B	B	B	33	B	B	B	B	B	B	21	13	23	23
27	24	19	B	B	B	18	18	16	13	13	13	20	20	33	B	21	18	29	5	5	14	14	16	14
28	20	14	14	14	17	6	6	6	6	5	6	14	13	6	18	18	16	4	13	14	14	18	13	6
29	6	18	B	19	6	6	7	4	6	6	6	6	17	14	19	12	14	19	16	4	7	14	13	5
30	16	17	B	B	19	B	18	13	14	5	15	19	19	14	14	16	14	19	5	19	5	16	5	
31	17	14	5	20	18	6	11	14	8	14	B	6	6	21	18	20	19	B	19	29	B	18	B	13
	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	30	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31
MED	14	14	18	18	18	18	18	14	14	16	18	19	19	19	19	19	18	19	16	16	14	14	14	13
U Q	19	19	B	20	19	20	21	19	19	20	24	B	B	24	40	21	29	23	19	21	19	16	19	14
L Q	12	13	14	14	13	13	13	13	13	14	14	15	14	15	14	15	15	14	14	13	13	13	13	10

IONOSPHERIC DATA STATION SHOWA-ST.

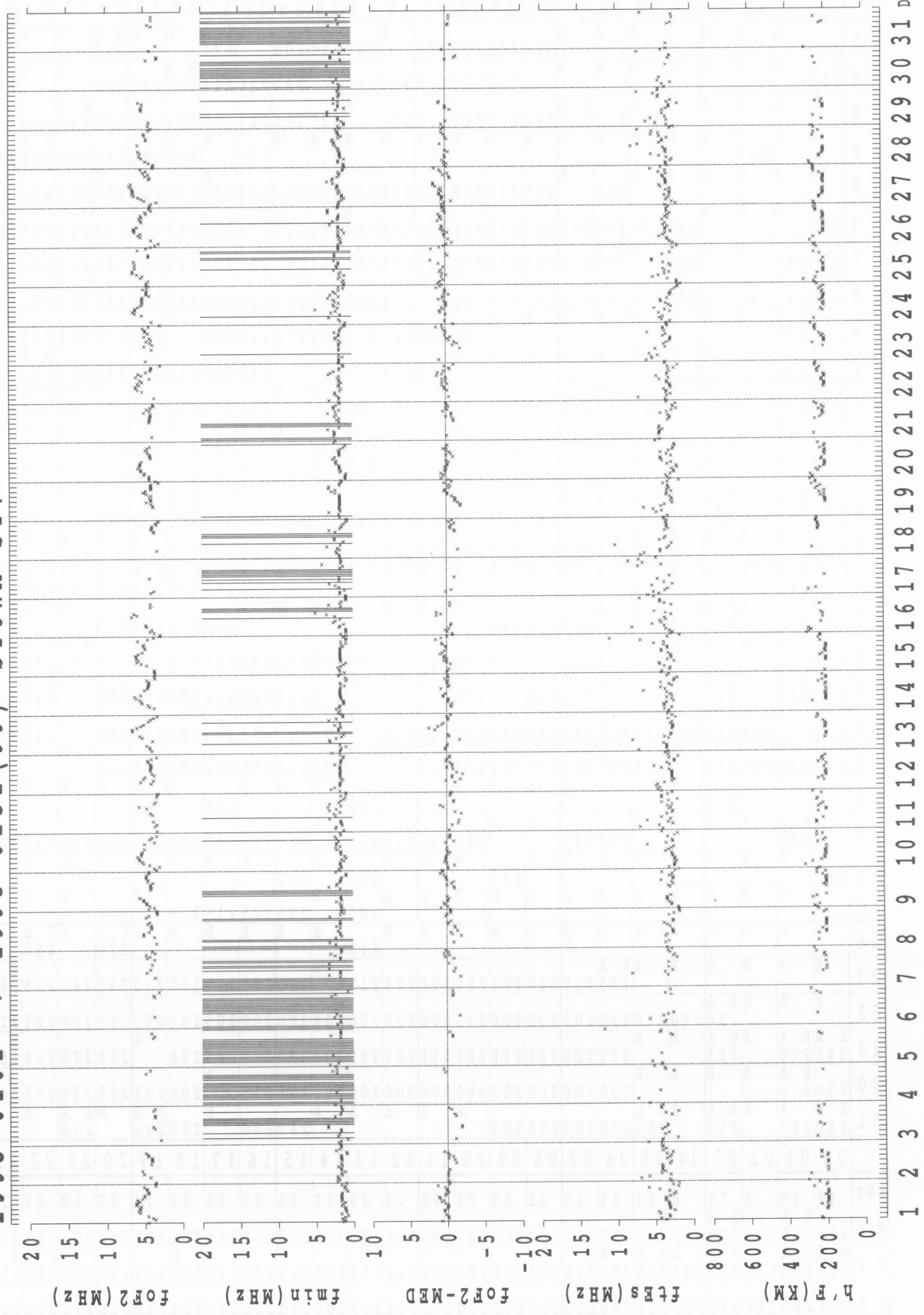
DEC. 1995 h'F (KM)

45°E MEAN TIME (G.M.T. + 3 H)

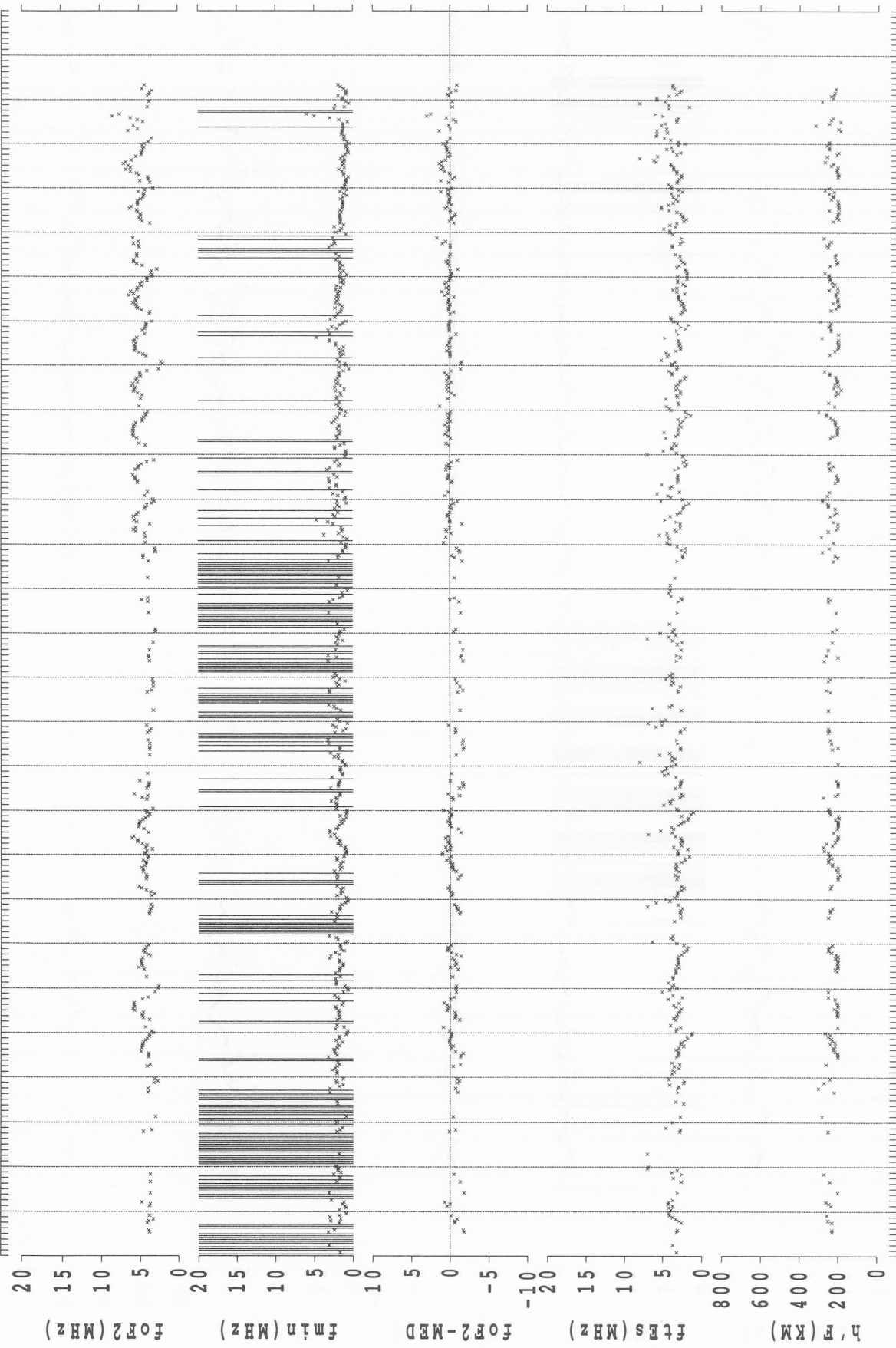
LAT. 69°00.4'S LON. 039°35.4'E SWEEP 0.4MHz TO 15.0MHz IN 20.0SEC IN MANUAL SCALING

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	A	A	A	A	A	A	A					A	220	200	200		BE A	B	AE S	S	A	A		
2	E A 270	A	A	A	B	A	A	A							BE B	220	220	215	E A		225	Y	Y	240	
3	A	A	Y	A	A	A		E A						A	220	215	210	200	205	230	205	E B	245	A	
4	B	A		205	B	B	B	B							B	B	230	B	A		210	240	E A	240	
5	A	A	A	A	A	A		A										H			H	225	210	230	
6	220		A	A	A	245	200	210	200	220	215	200	200	205	240	200	200	200	200	200	205	240	240	220	
7	235	220		A	A	225	255	235	215	205	200	235	195	200	200	195	220	205	215	200	205	215	240	240	
8	E BE B 250	255	230	200	240	210	205	220	205	205	200		210	200	205	200	220	205	205	205	200	215	230	240	
9	E A 240	E A	A	A	A	A	A	B									E B		A		240	220	255	245	220
10	A	235	B	A	A	B	A	A							A	A	A				200	200	210	205	230
11	E A 260	240		A	A	A	255		215	215	205	195	190	215	205		A	A			230	200	200	205	235
12	E A 255	A	A	235	225	220	200	220	210	200	200		A	A	A		A		H		205	205	205	205	205
13	A	A	A	A	A	A		A							E A		220				215	210	200	205	240
14	E AE AE A 240	280	240	250	200		A	A	A						A				E A		285	215	205	215	235
15	A	A	A	A	A	A		A							A						A	A	A	A	A
16	AE A 260		A	A	A		B	A	B	B	B	B	B	B	B	A		AE AE AE A			250	255	250	245	245
17	A	235	AE AE A	AE AE A	AE AE A	A		A				A	B	B	B	B	B				220	215	230	215	AE A
18	220		A	A	A	A		A																	AE BE B
19	E A 240	240	BE A	AE A	B	B	A																		270
20	230	AE AE AE A	250	245	250	235	205	205	195	200	200	200	195	A	A										AE S
21	245	250	250	255	A	225	200	205	200	200	200	240													AE B
22	A	A	A	230	A	A	A	A	A	A	A	B	B	B	B	B	B								A
23	BE A 240	A	A	A	A	S																			AE A
24	245	A	B	A	A	A	A	A	A																AE A
25	A	B	B	B	B	B	B	A	A	B	B	B	B	B	B										AE A
26	A	A	A	A	A	B	A	B	B	A	B	B	B	B	B	B									AE B
27	A	A	B	B	B	AE A																			AE A
28	Y	A	AE A	AE A		275	210	200	200	200	200	200	205	215											AE A
29	E AE A 245	270	BE A	AE A	A	A																			AE A
30	E A 230	275	B	B	A	B																			AE A
31	E B A 250	250	AE A	AE A	AE A	AE A																			AE A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	18	15	6	11	8	11	18	19	22	23	21	20	19	20	17	23	23	26	26	24	27	19	21	18	
MED	E A 236	250	228	E A 250	231	212	210	205	200	200	200	205	205	201	200	208	205	205	206	208	208	235	232	232	
U Q	E AE A 250	260	250	E AE A 250	248	250	230	220	215	205	200	210	210	218	205	215	220	215	220	230	230	245	E AE A 250	250	
L Q	235	240	230	230	222	200	205	200	200	200	200	200	200	200	200	200	200	205	205	205	205	205	215	225	240

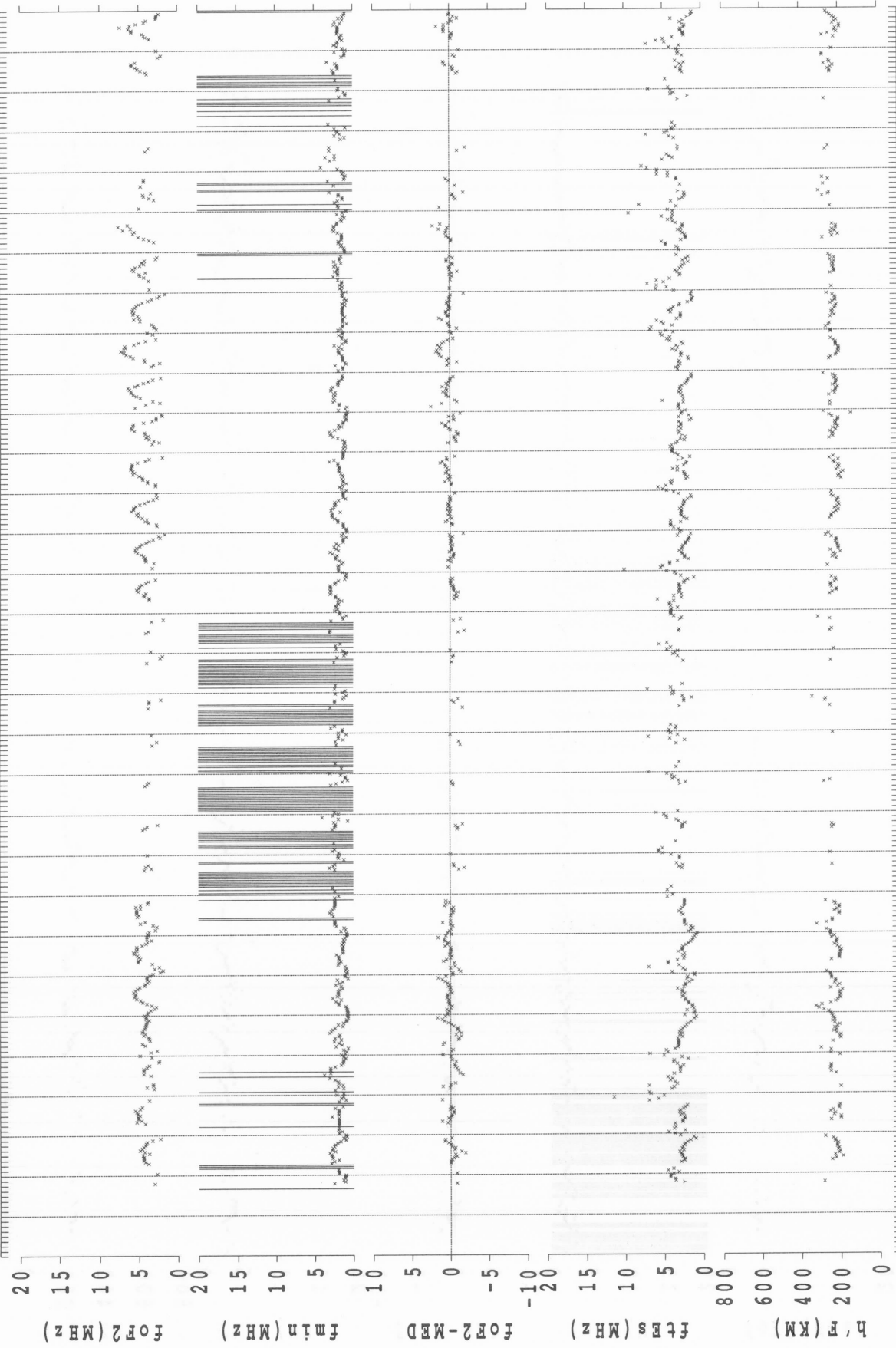
1995 0101 -> 1995 0131 (99) SYOWA-ST.



1995 0201 -> 1995 0228 (99) SYOWA-ST.

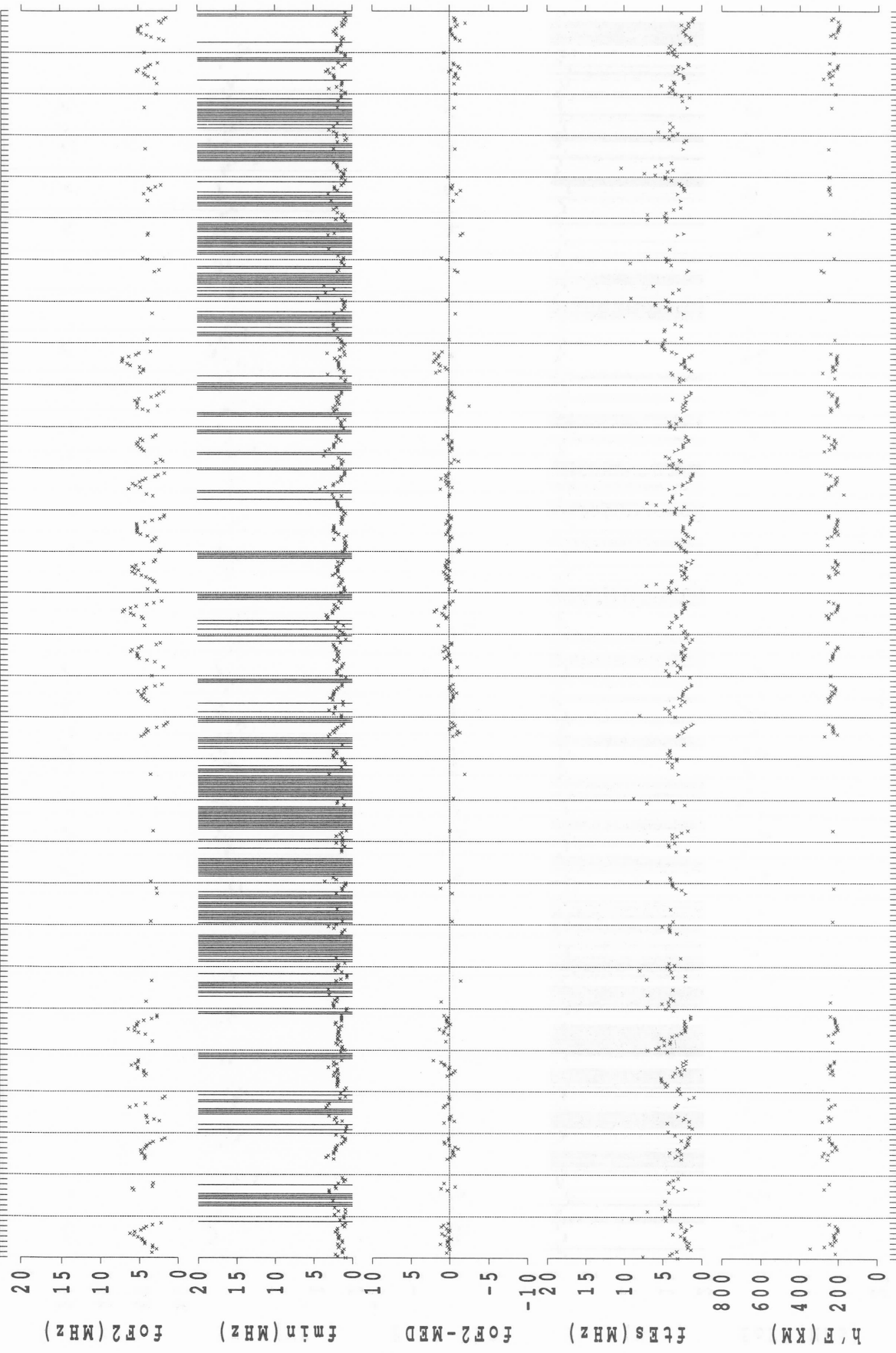


1995 0301 -> 1995 0331 (99) SYOWA-ST.



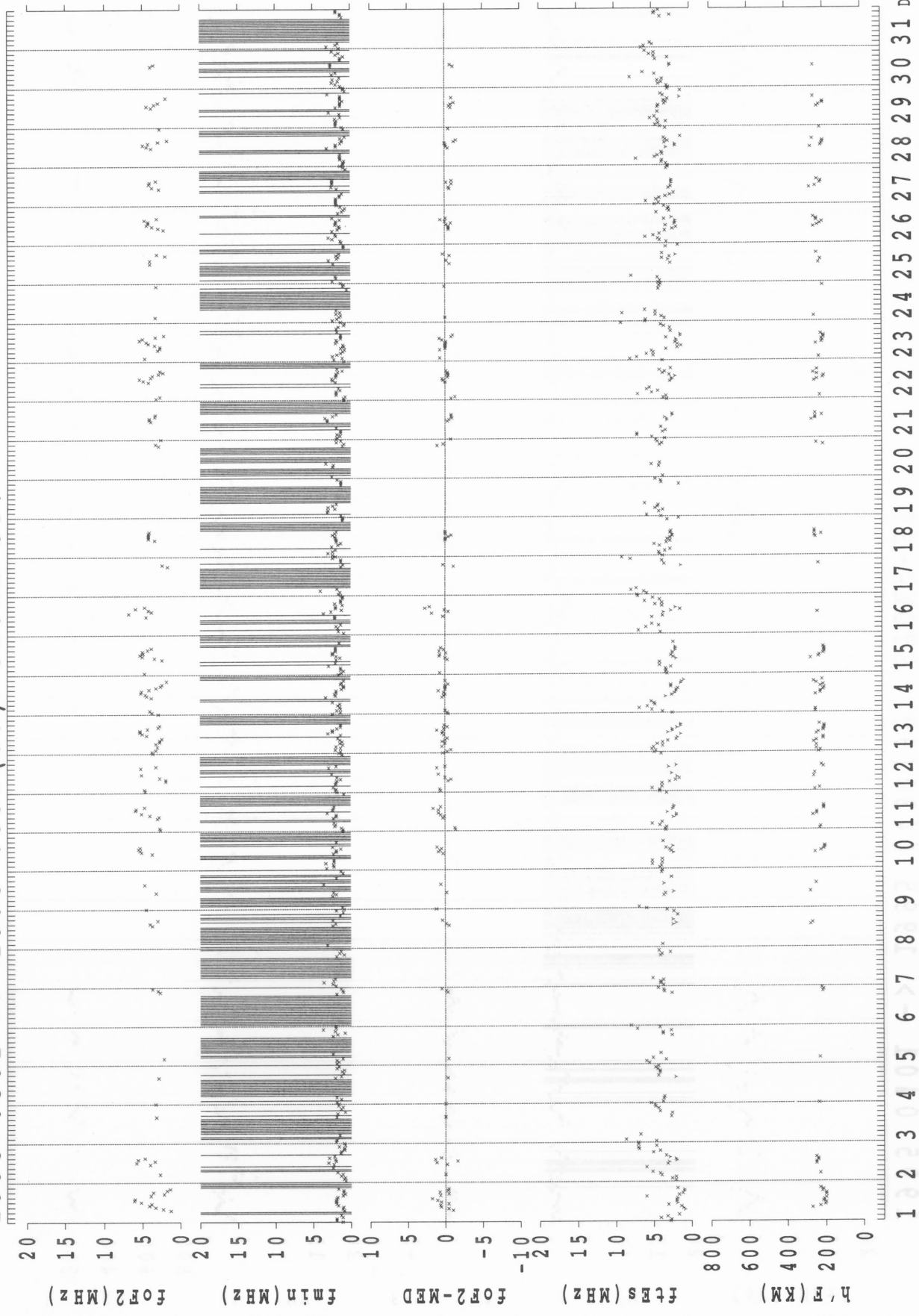
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1995 0401 -> 1995 0430 (99) SYOWA-ST.

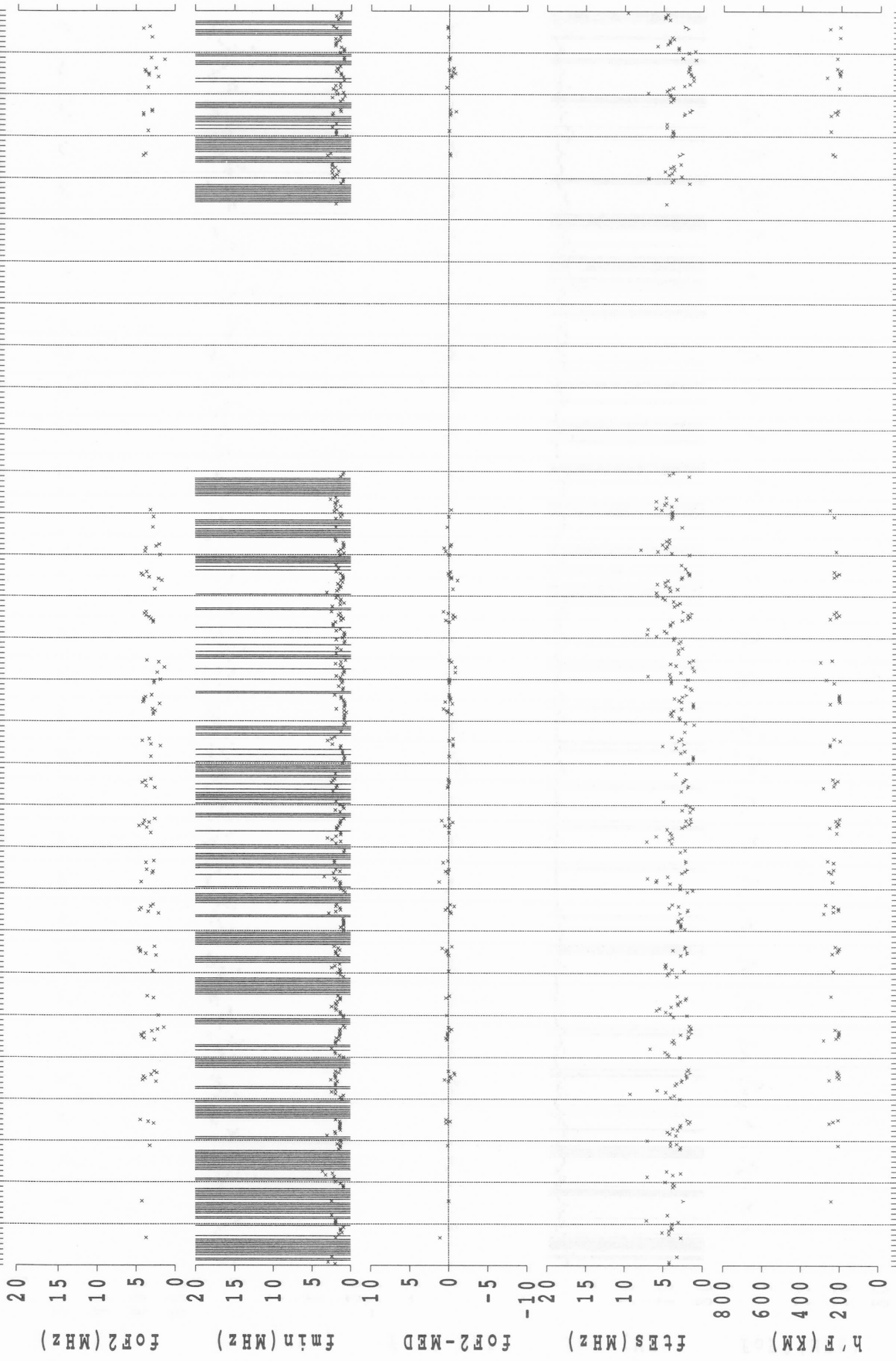


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 DAY/45' EMT

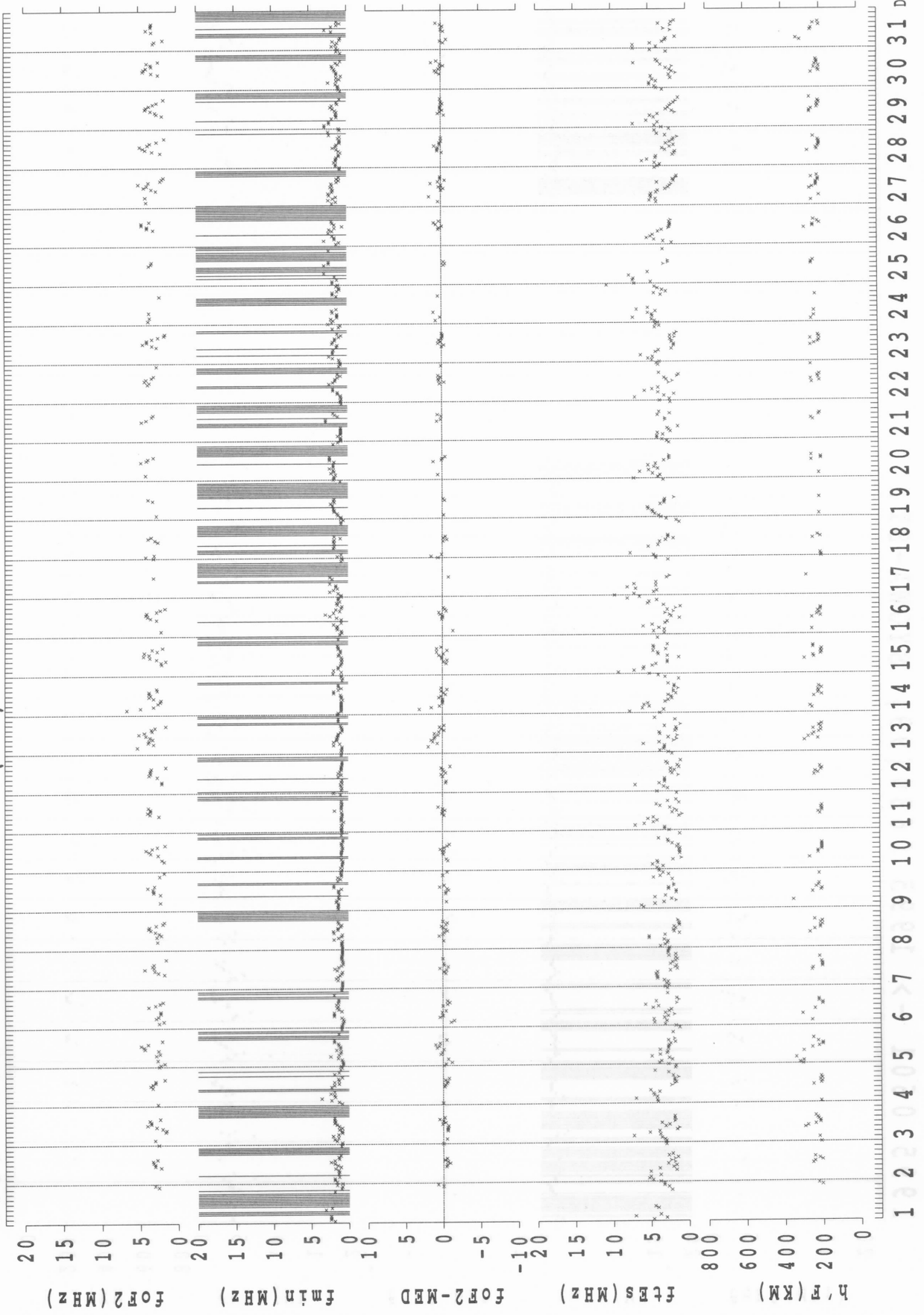
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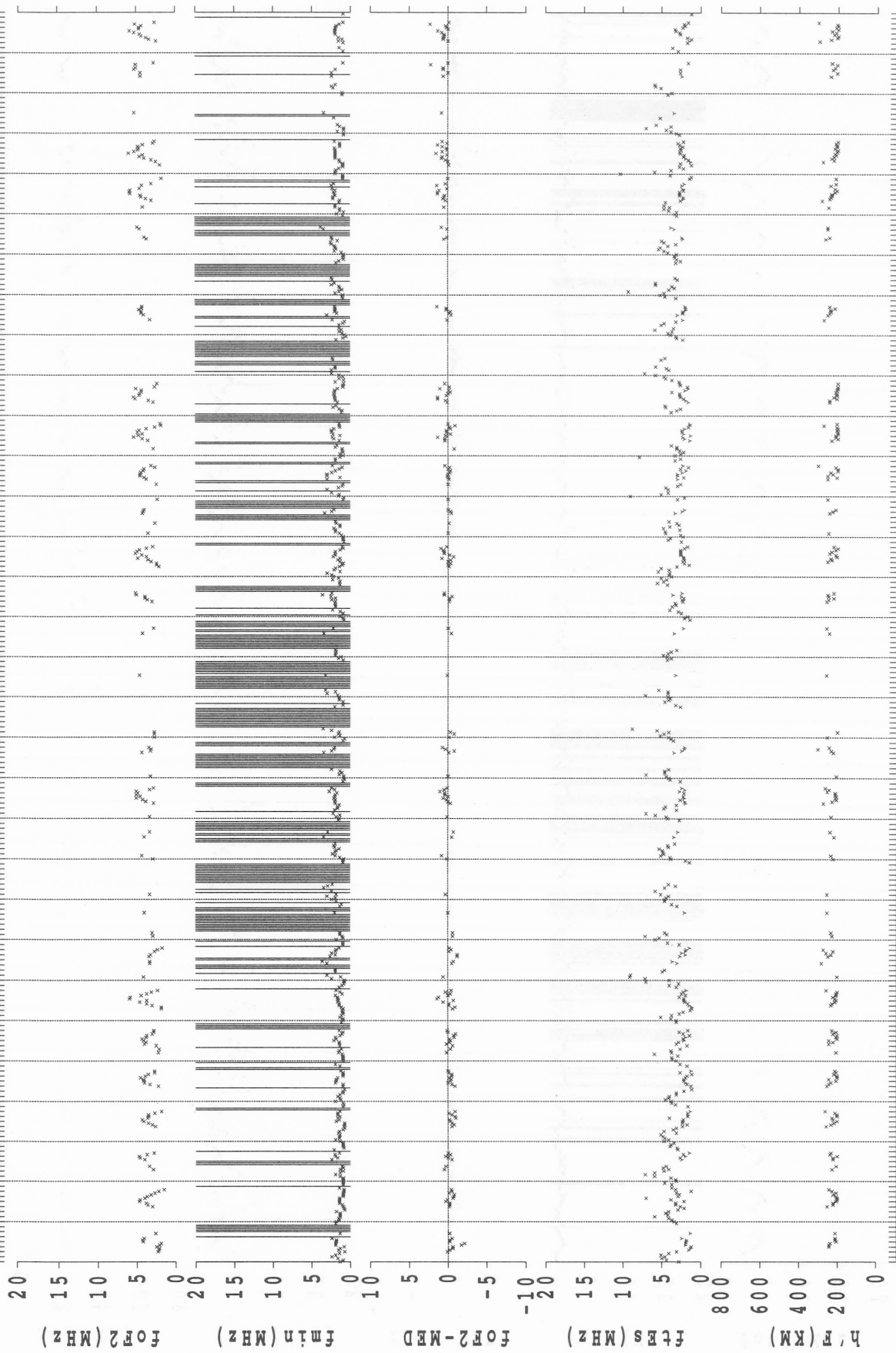
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1995 0701 -> 1995 0731 (99) SYOWA-ST.

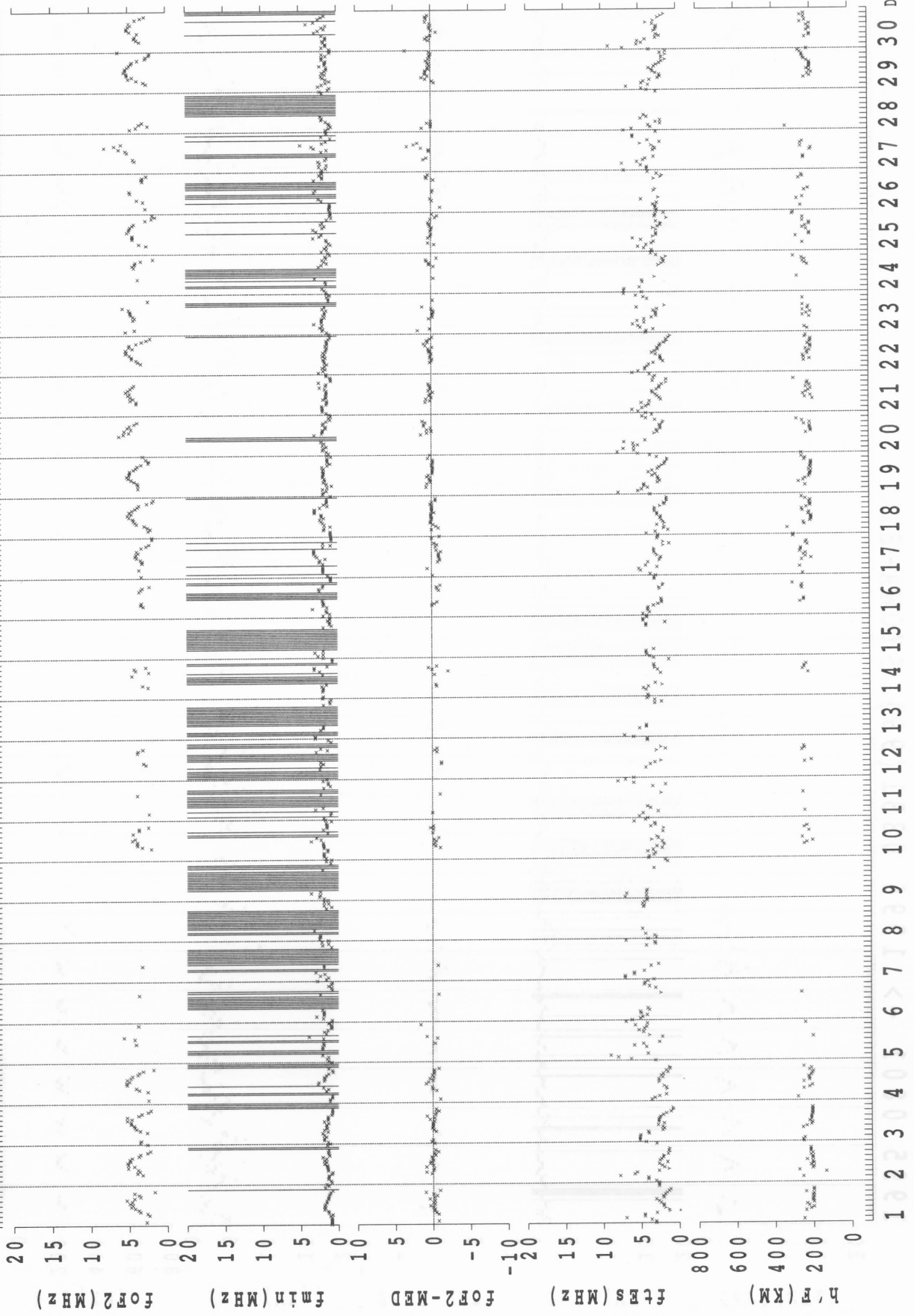


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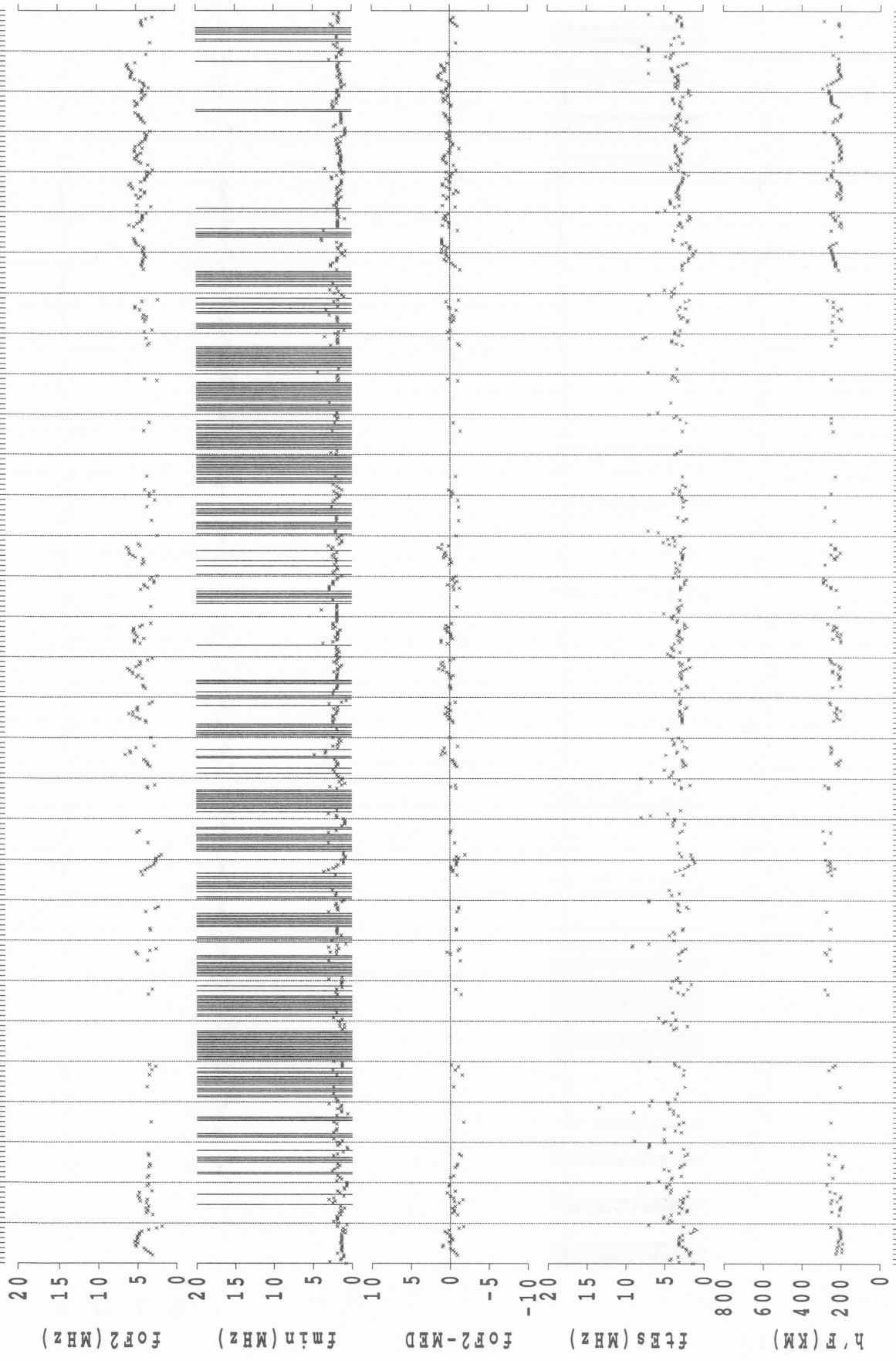


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 DAY/45' EMT

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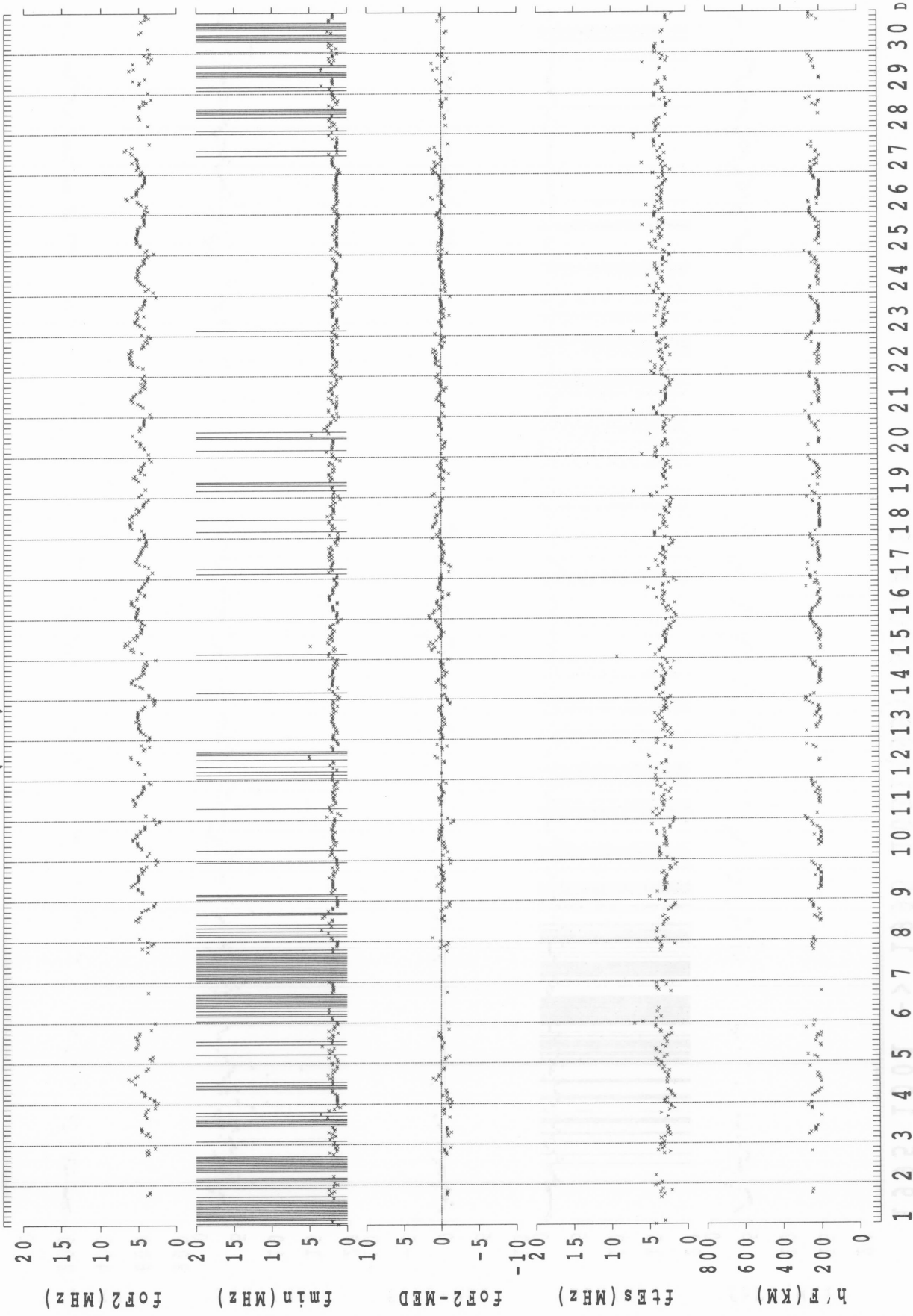


1995 1001 -> 1995 1031(99) SYOWA-ST.

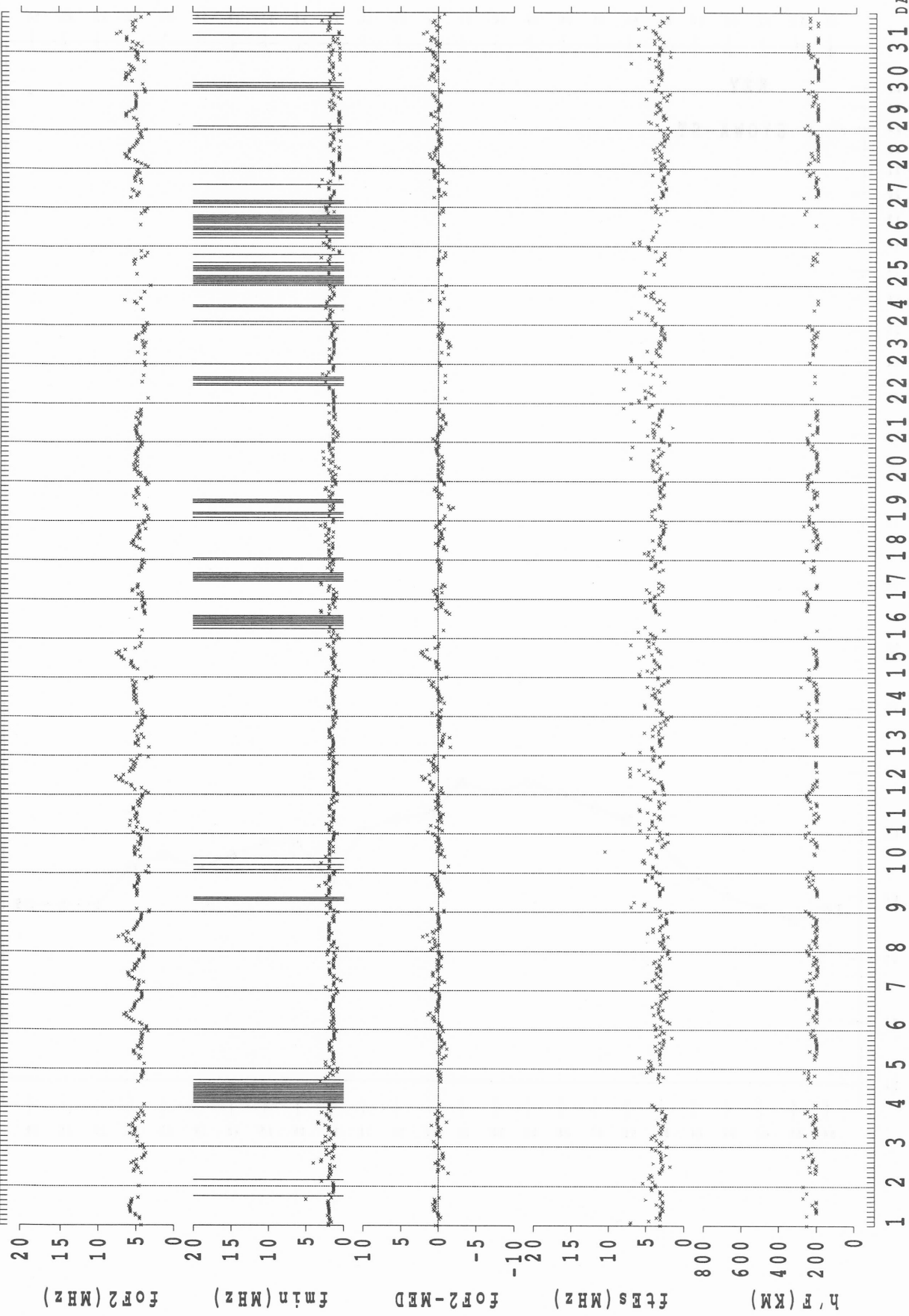


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 DAY/45' EMT

1995 1101 -> 1995 1130 (99) SYOWA-ST.



1995 1201 -> 1995 1231 (99) SYOWA-ST.

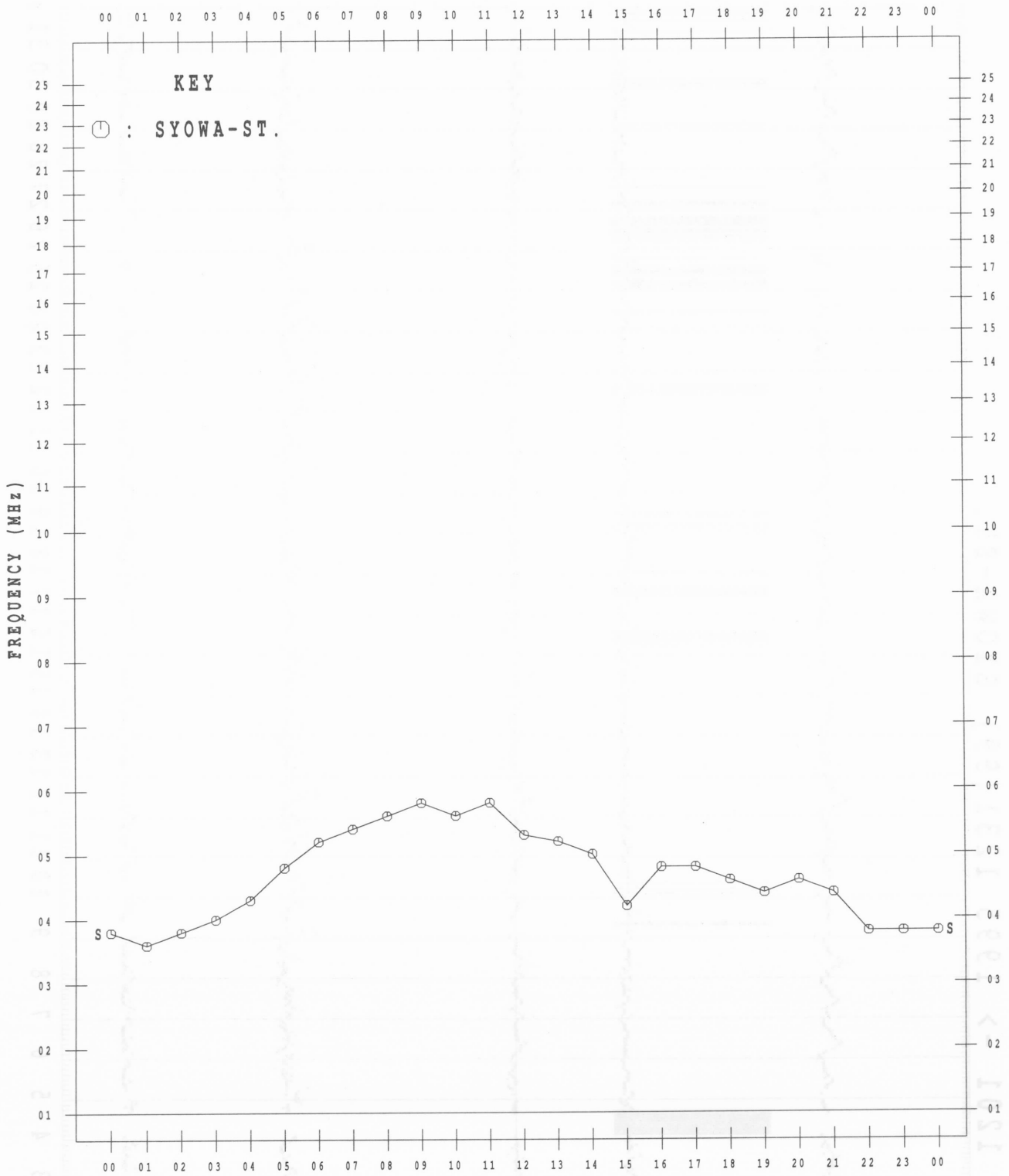


NORTH BY NORTON RANGE OF IONS
 1995 1201 -> 1995 1231 (99)

MONTHLY MEDIAN VALUES OF f_oF₂

45° E MEAN TIME

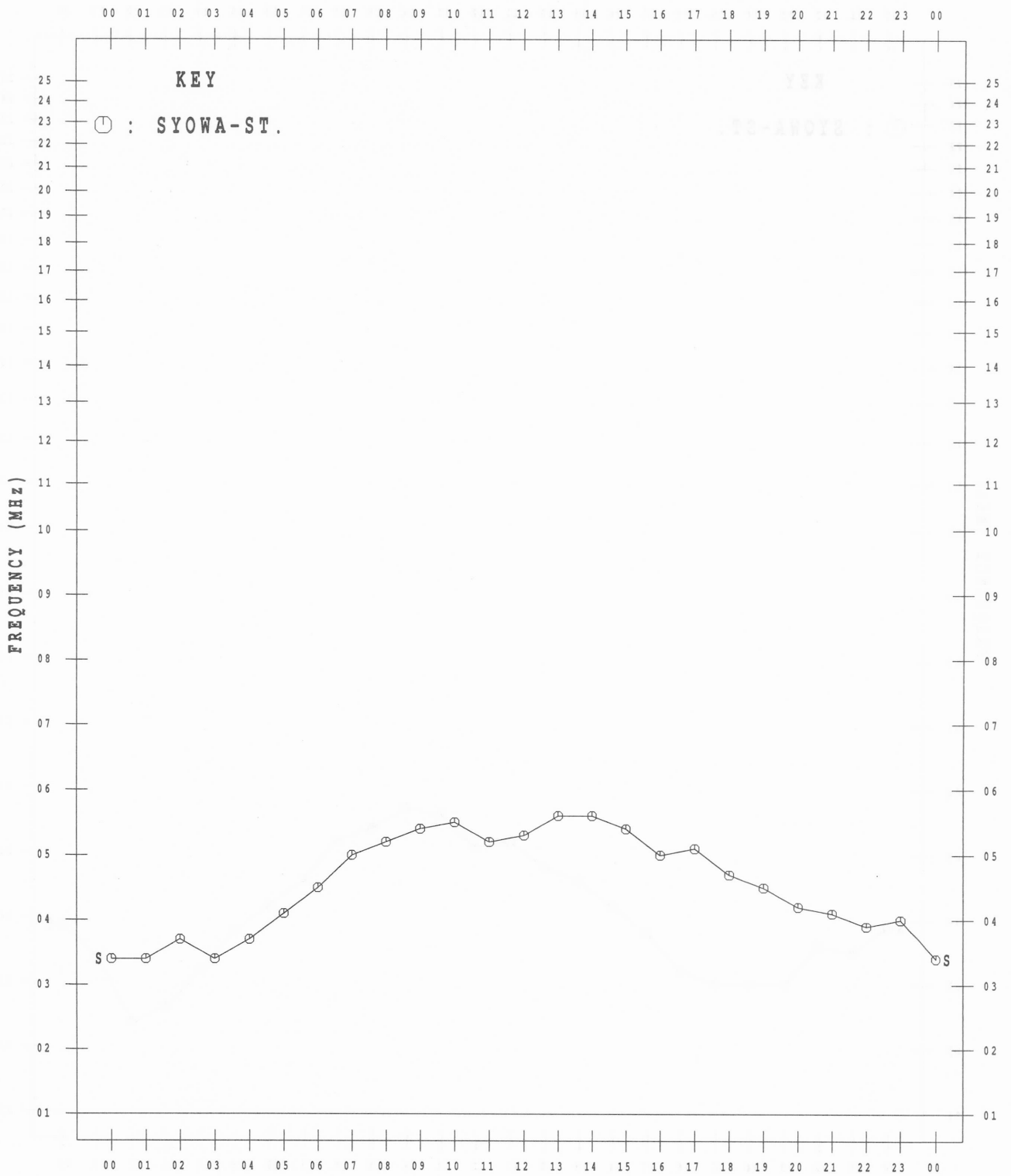
JAN. 1995



MONTHLY MEDIAN VALUES OF f_oF₂

45° E MEAN TIME

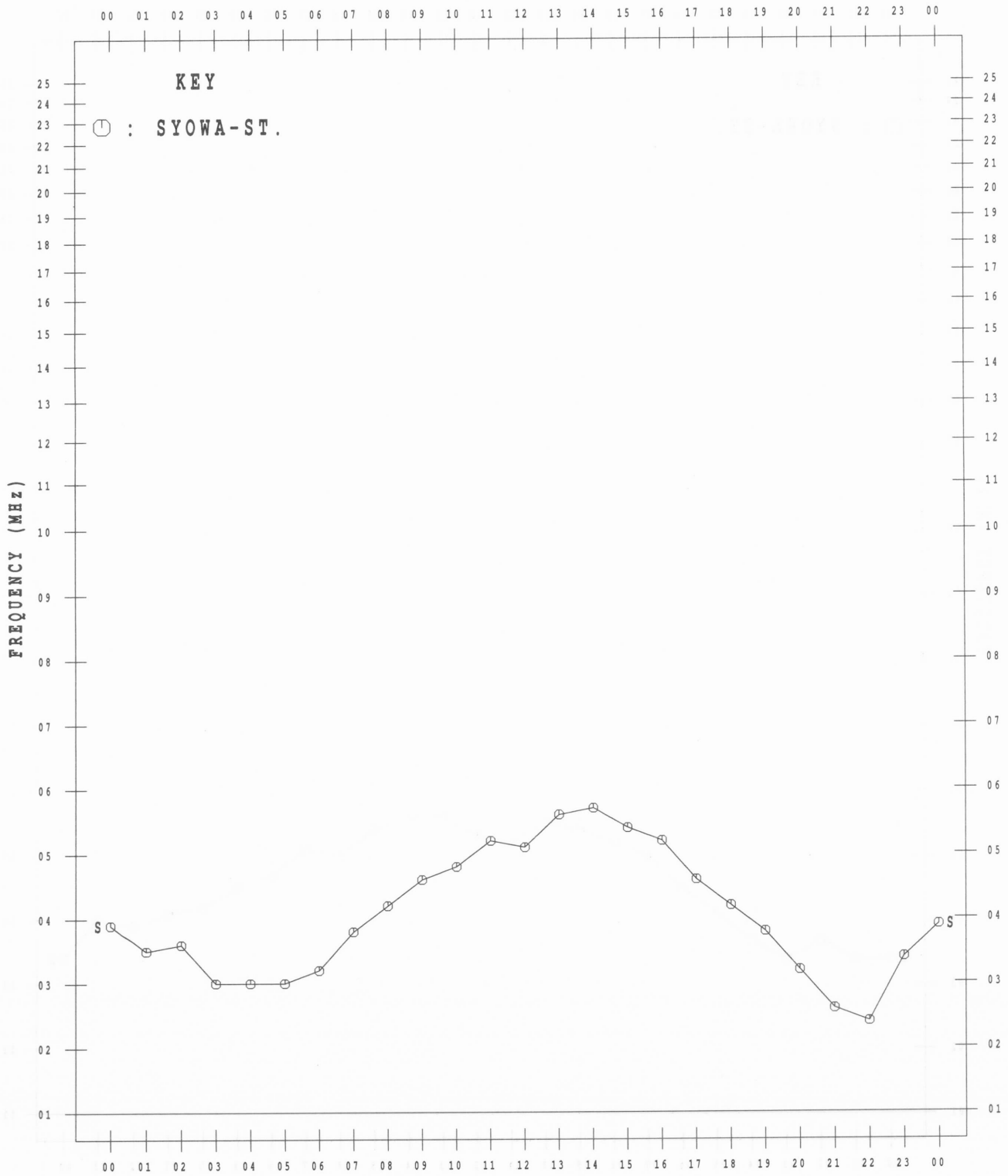
FEB. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

MAR. 1995

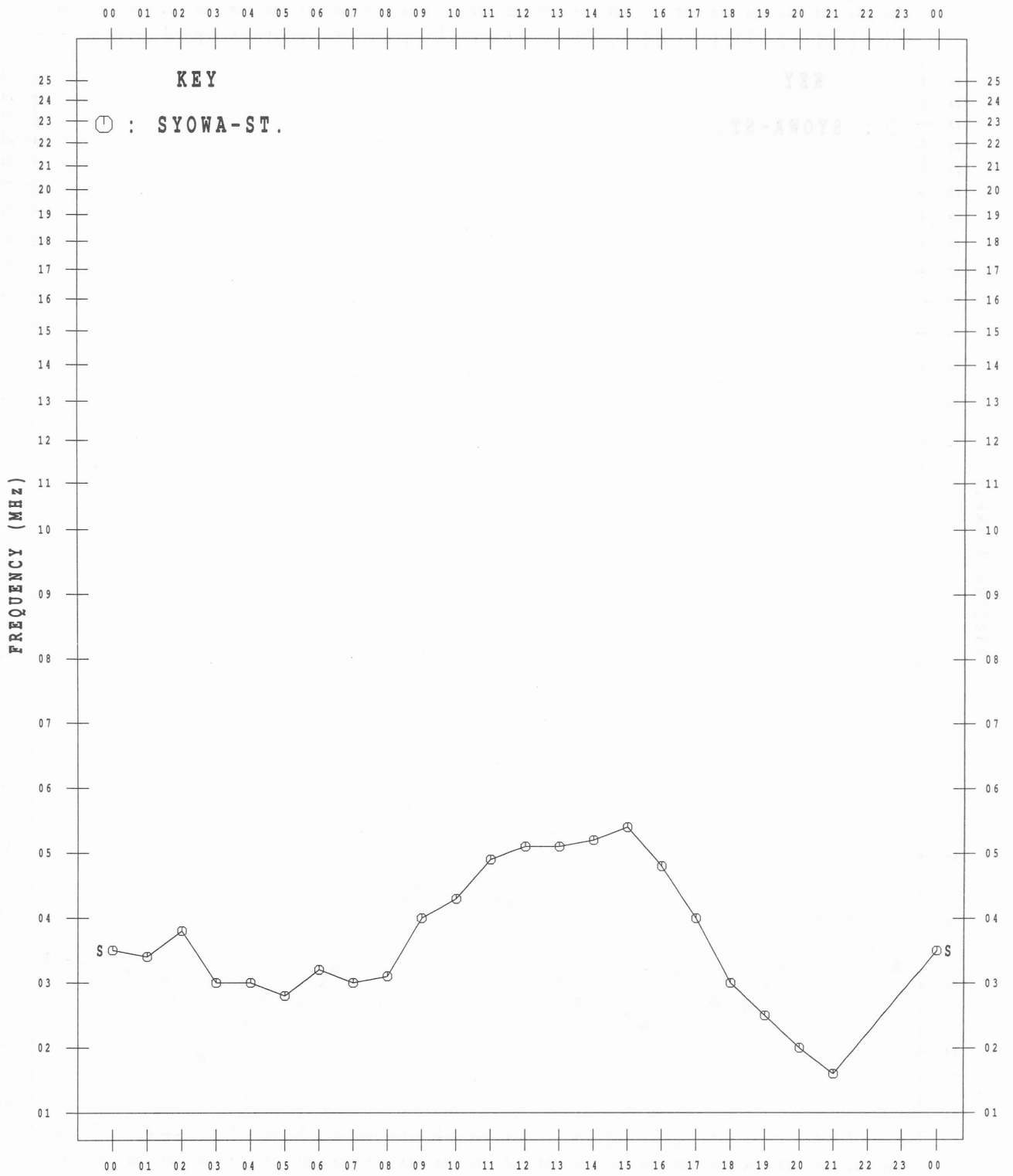


MONTHLY MEDIAN VALUES OF foF2

SYOWA ST.

45° E MEAN TIME

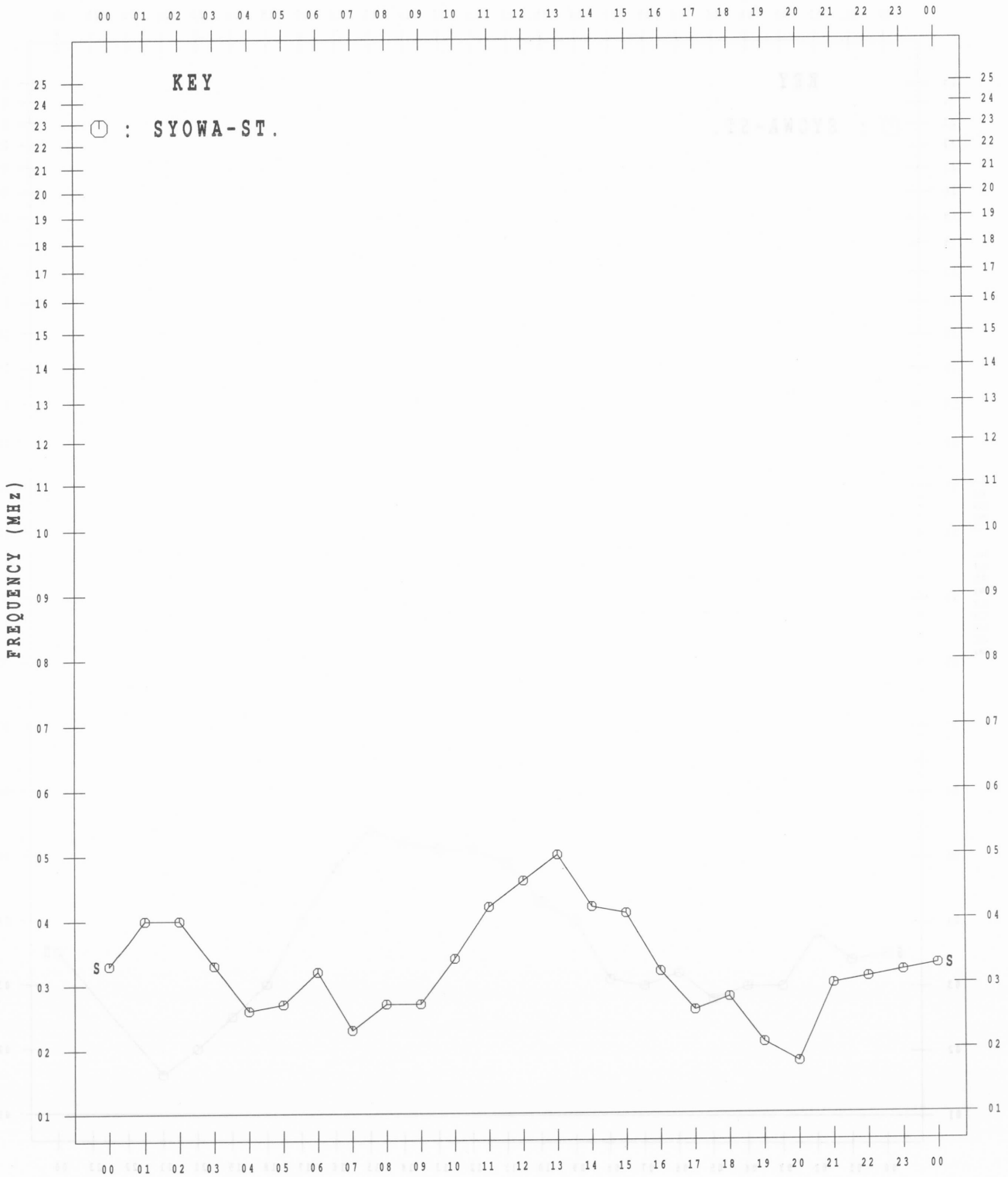
APR. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

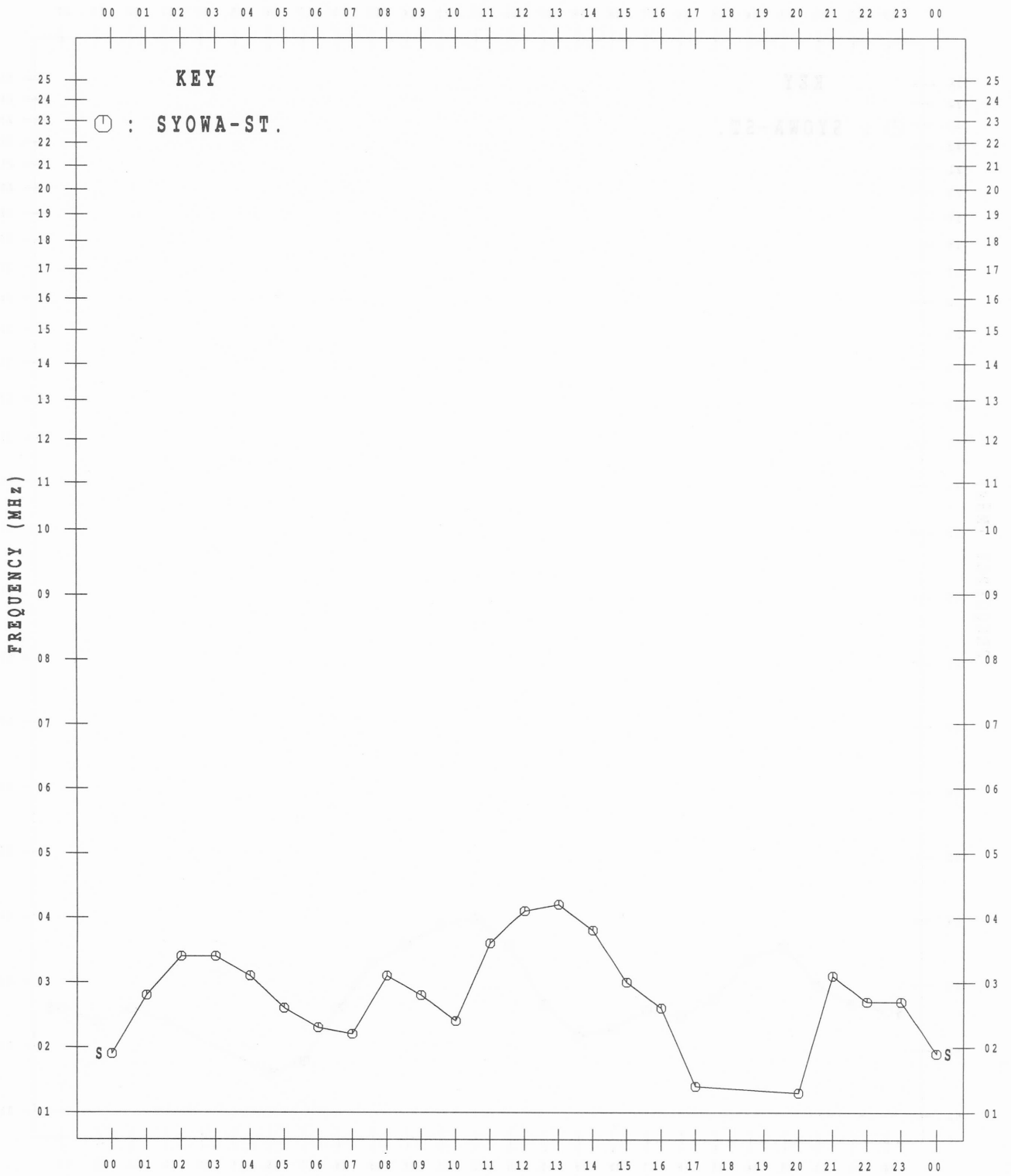
MAY 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

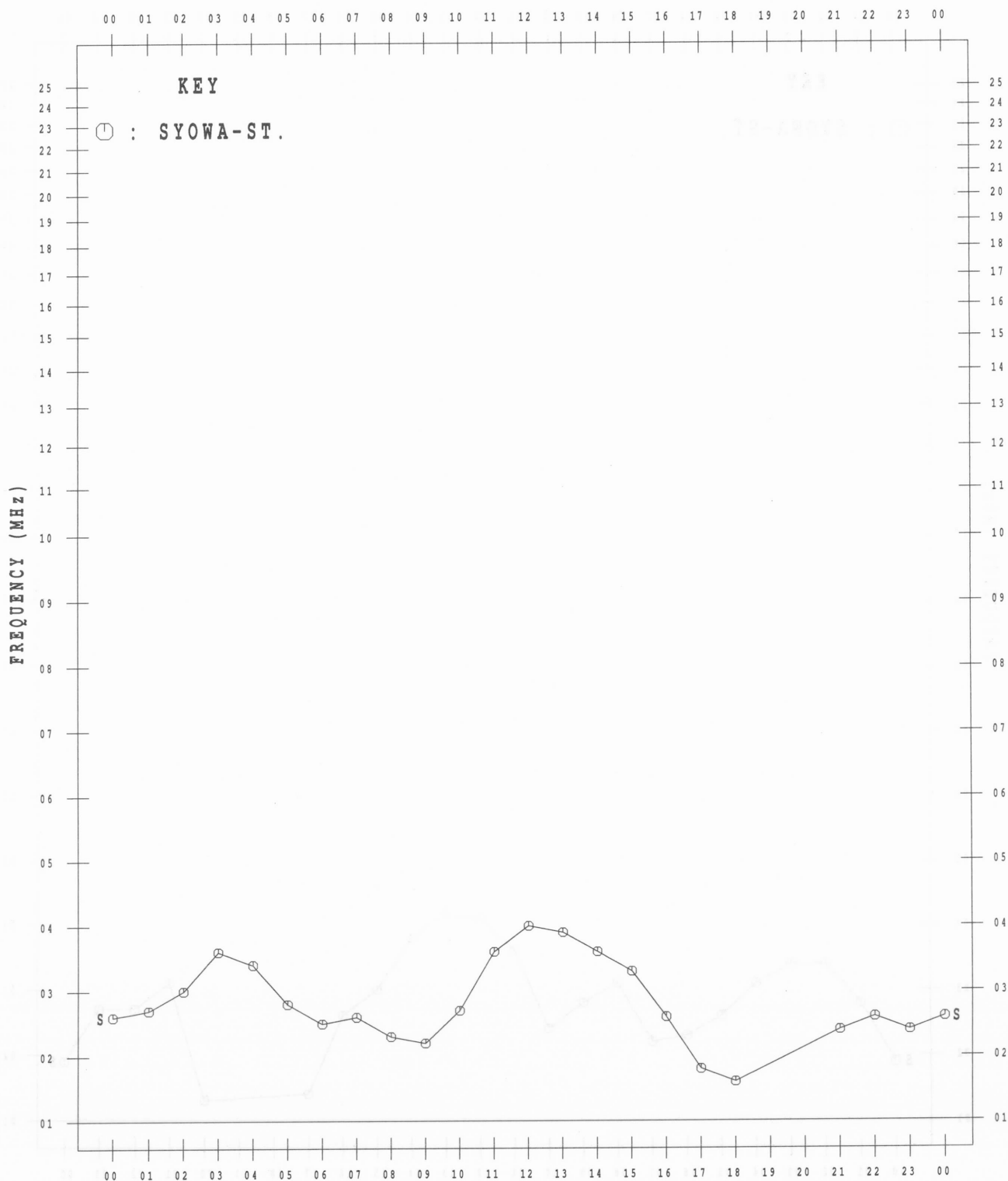
JUN. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

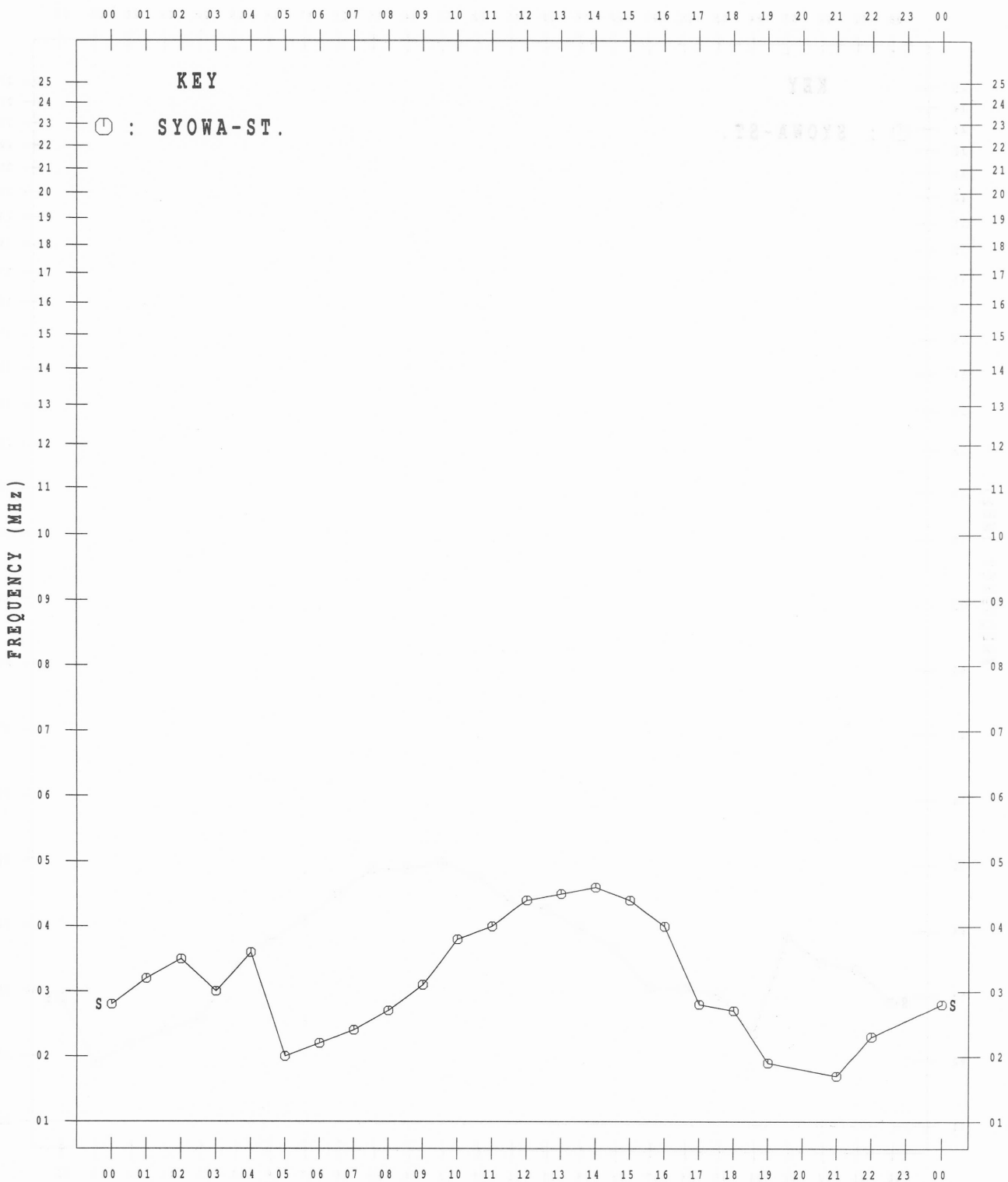
JUL. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

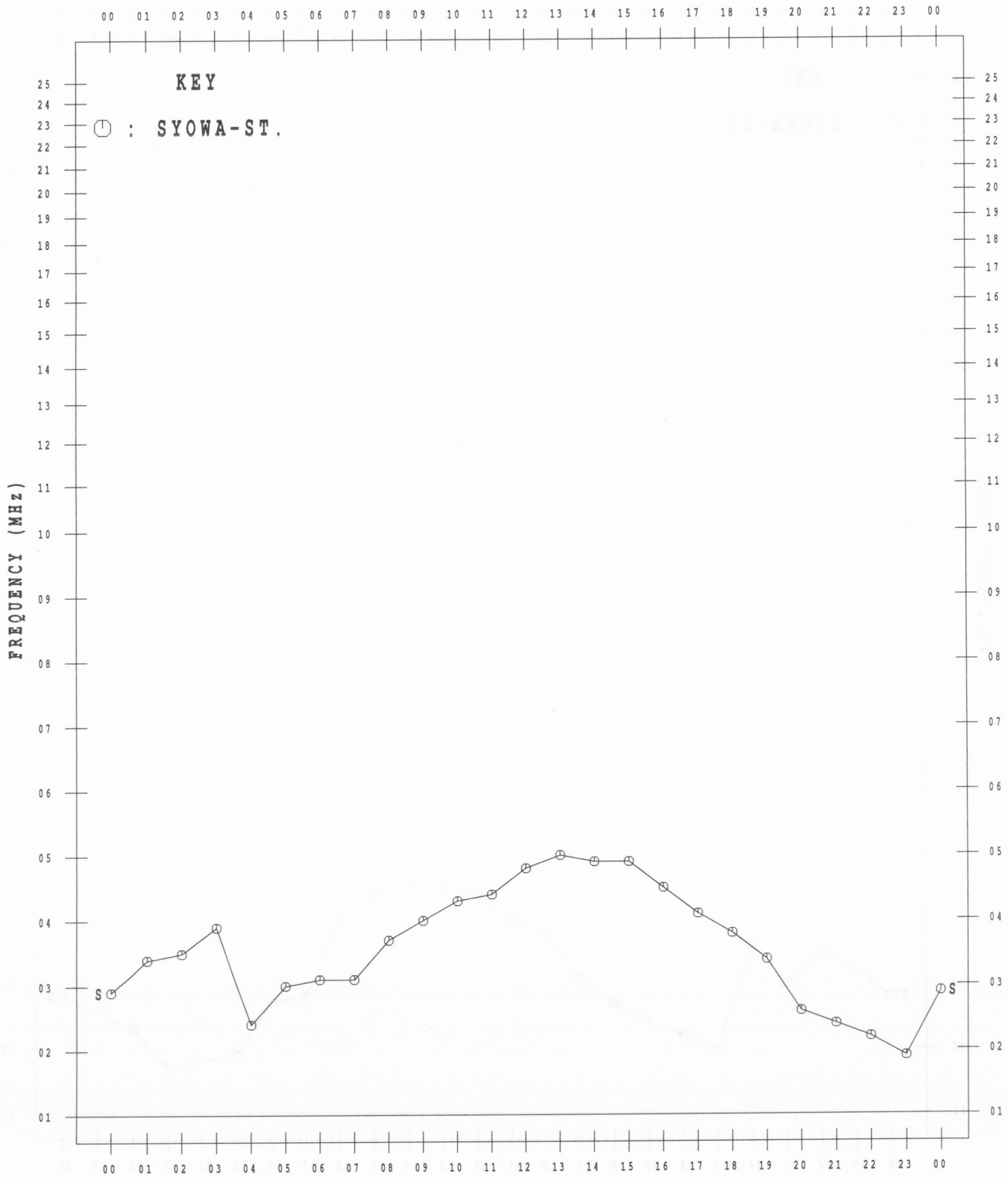
AUG. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

SEP. 1995

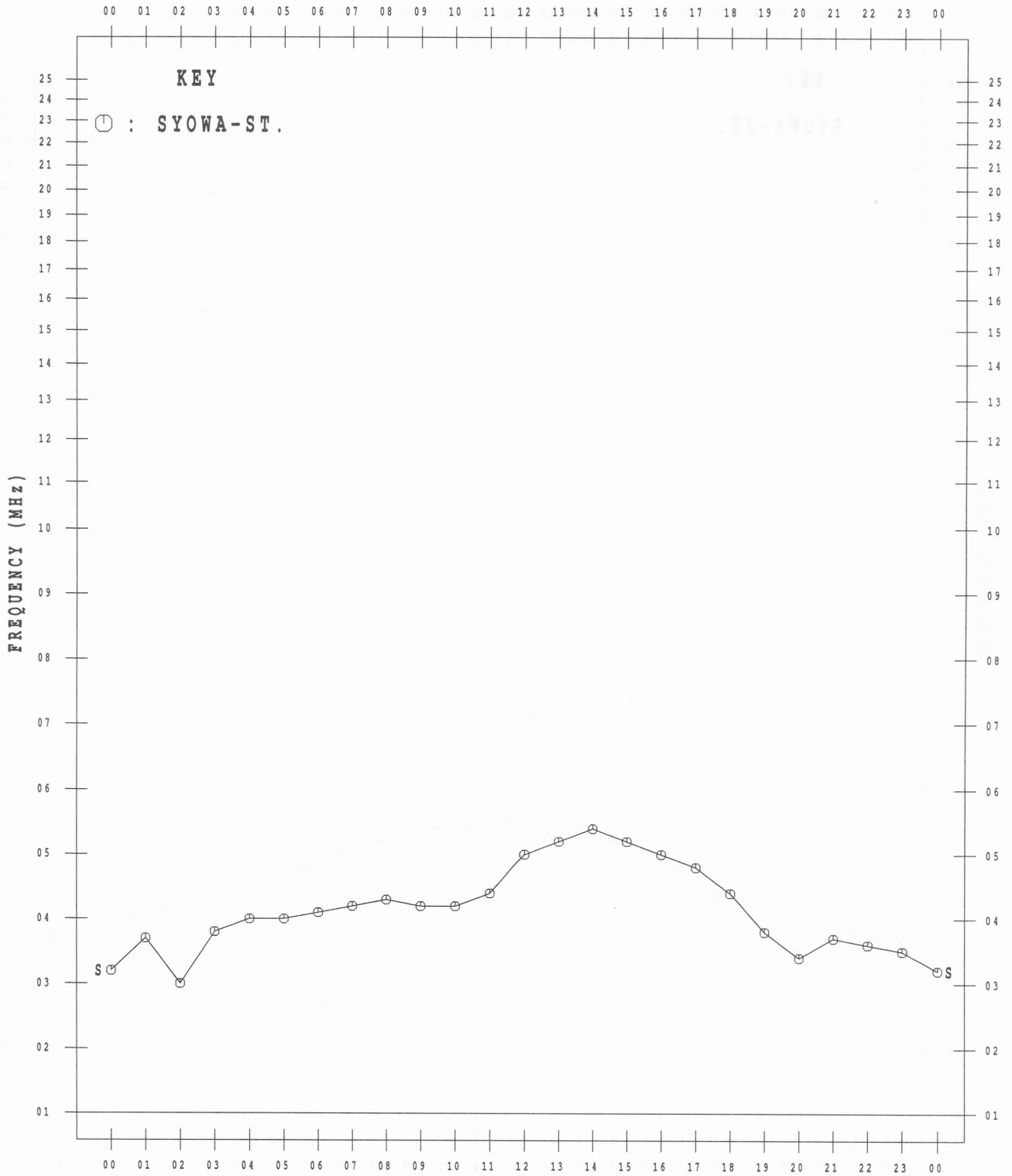


MONTHLY MEDIAN VALUES OF foF2

3881 Y02

45° E MEAN TIME

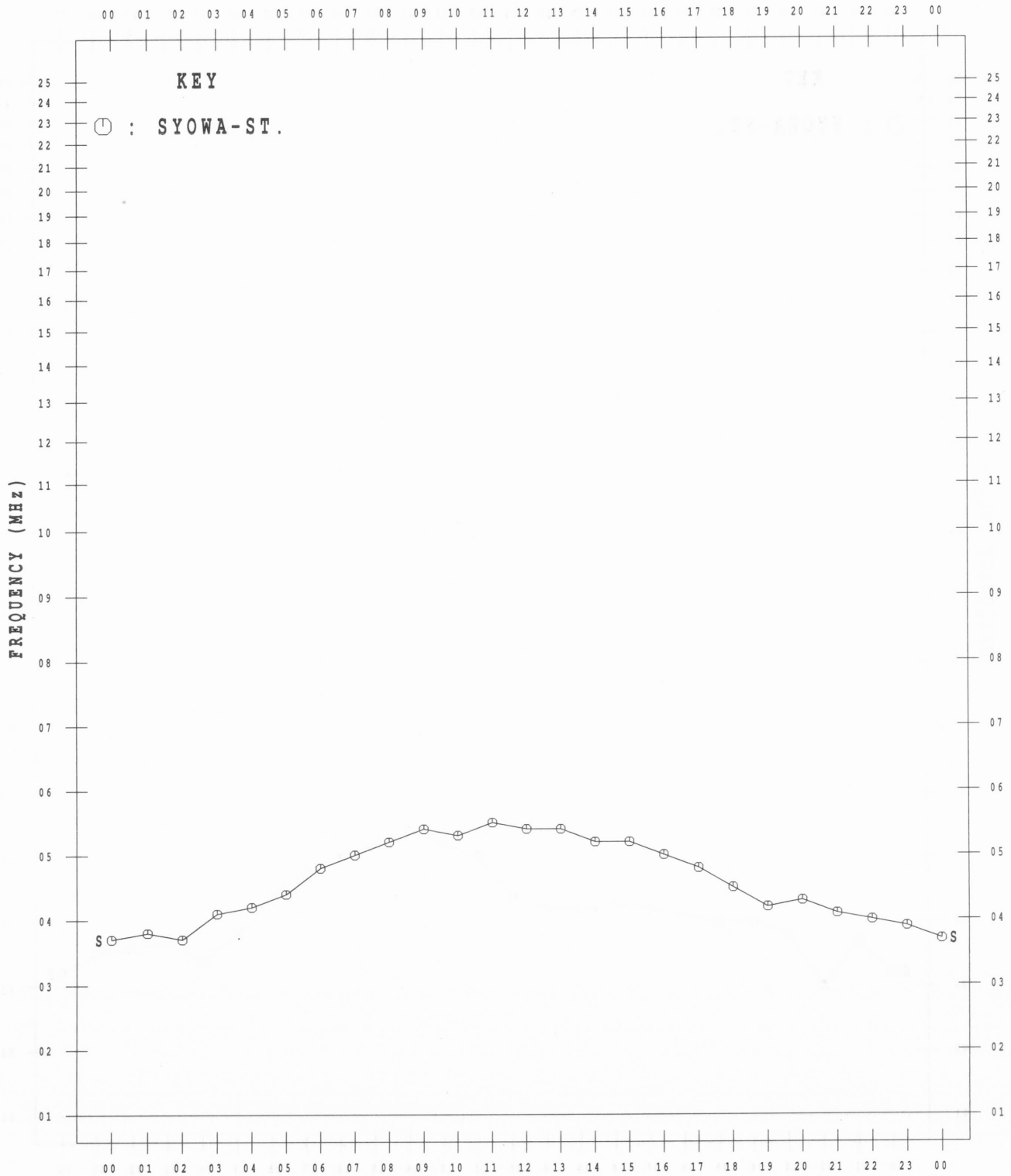
OCT. 1995



MONTHLY MEDIAN VALUES OF foF2

45° E MEAN TIME

NOV. 1995

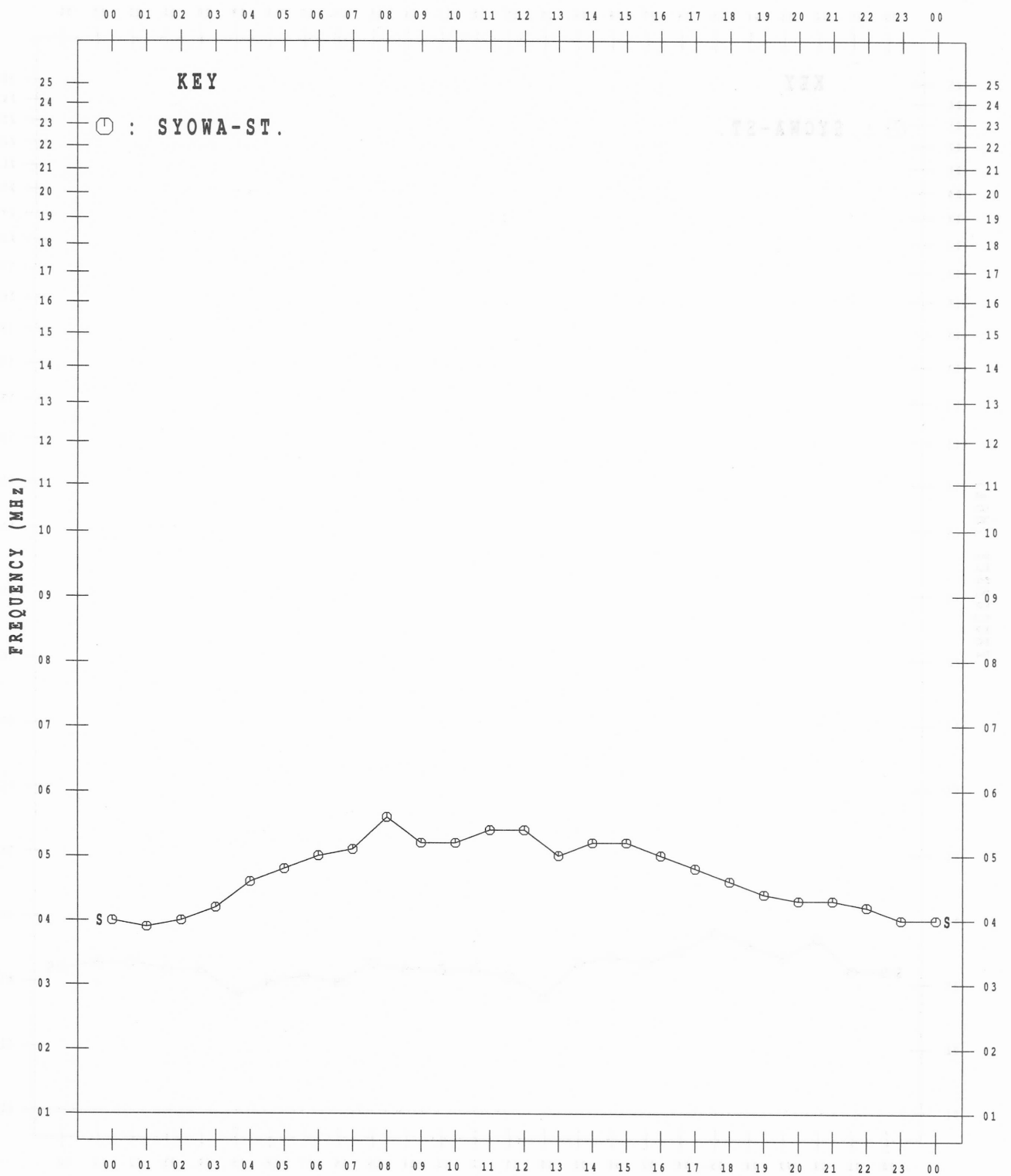


MONTHLY MEDIAN VALUES OF f_oF₂

3001 040

45° E MEAN TIME

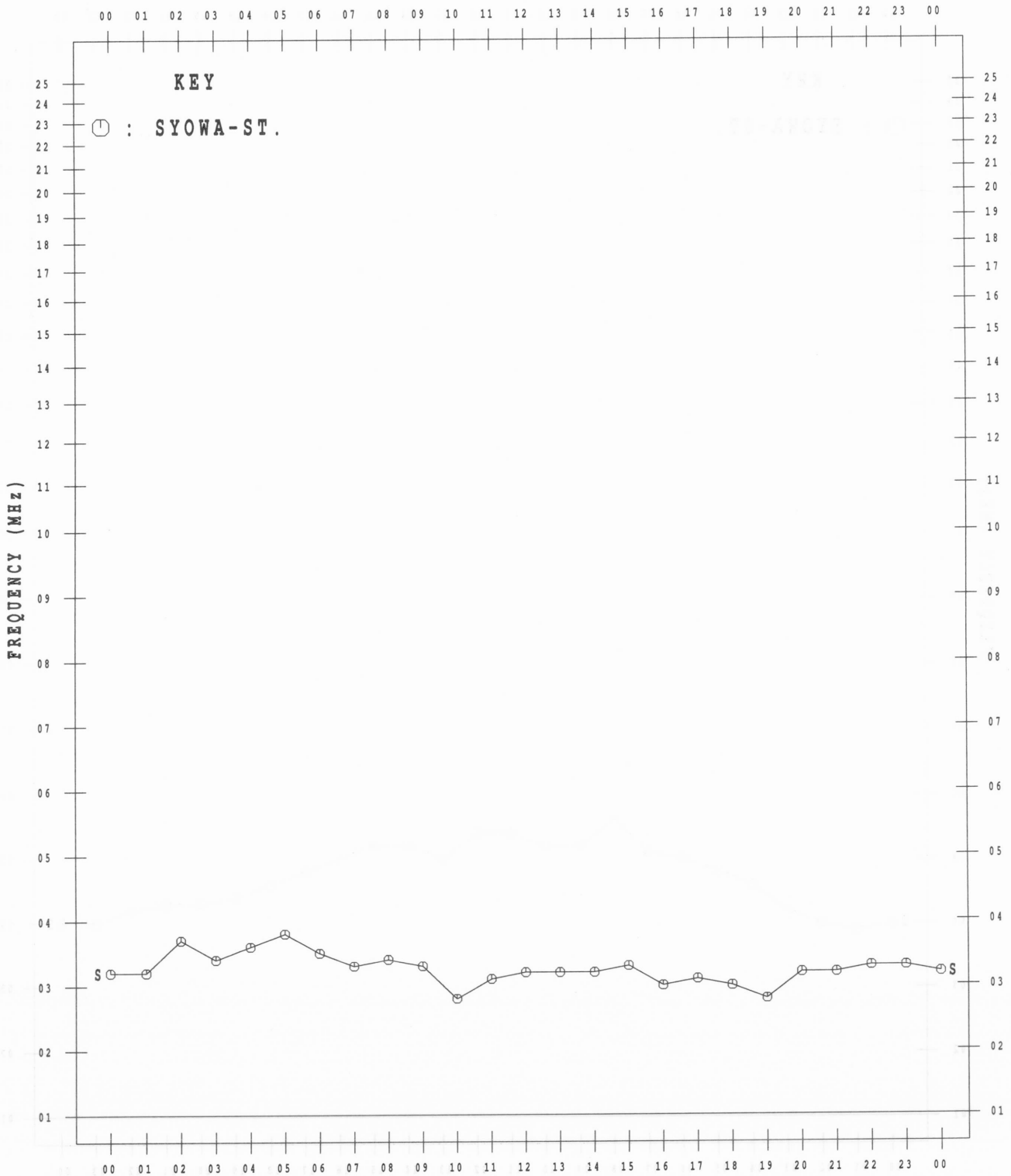
DEC. 1995



MONTHLY MEDIAN VALUES OF ftEs

45° E MEAN TIME

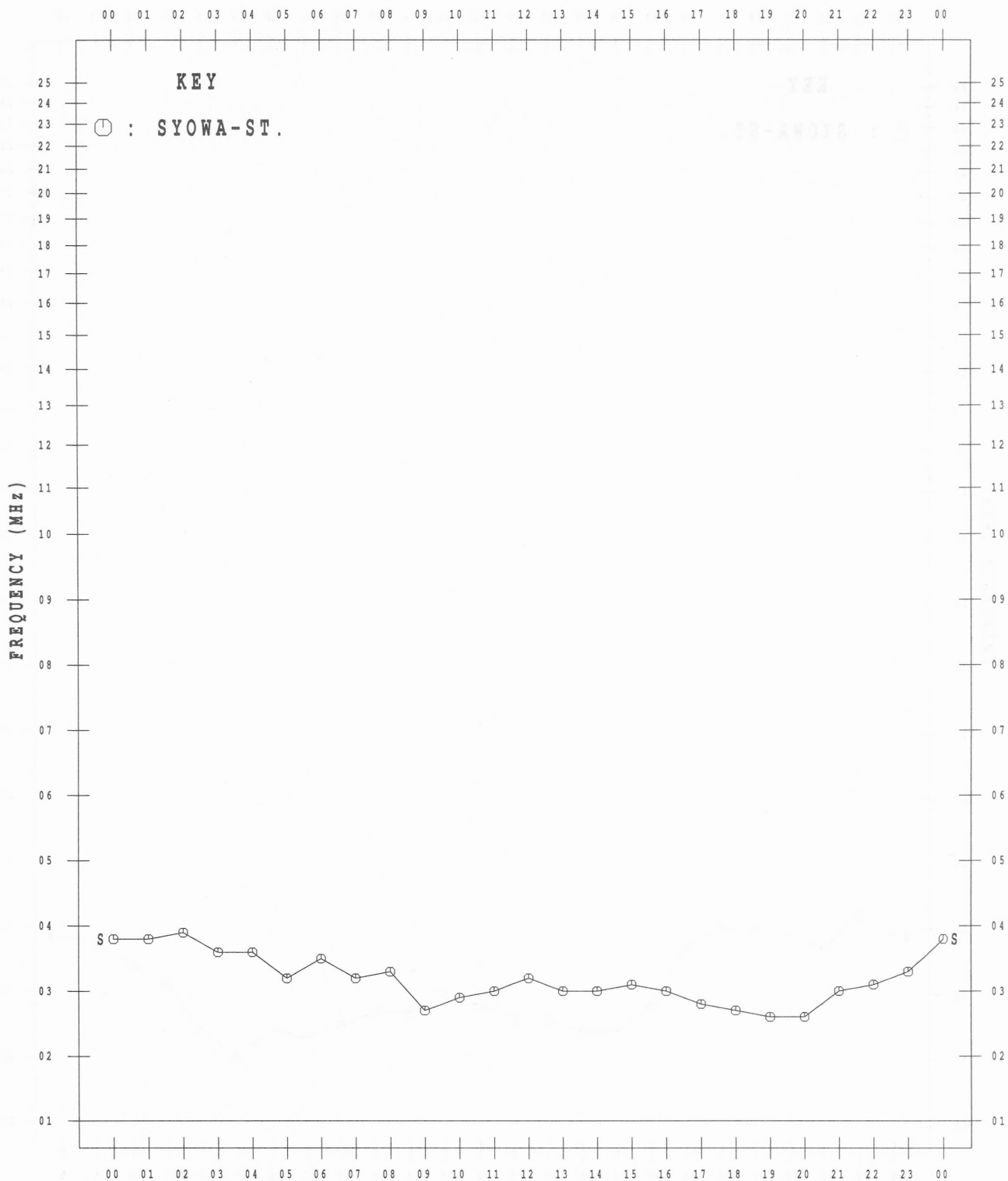
JAN. 1995



MONTHLY MEDIAN VALUES OF f_{TE}s

45° E MEAN TIME

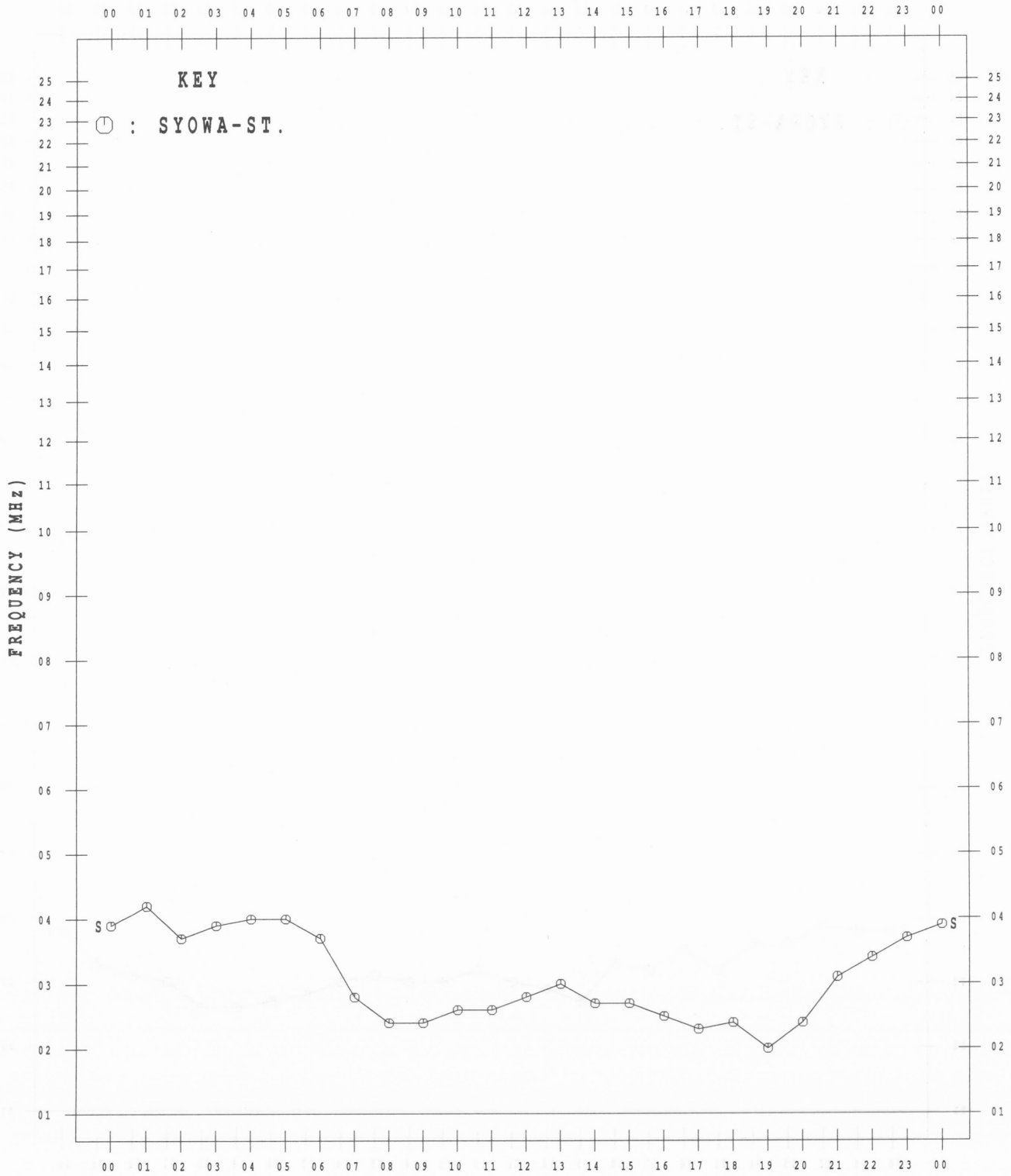
FEB. 1995



MONTHLY MEDIAN VALUES OF f_{TE}s

45° E MEAN TIME

MAR. 1995

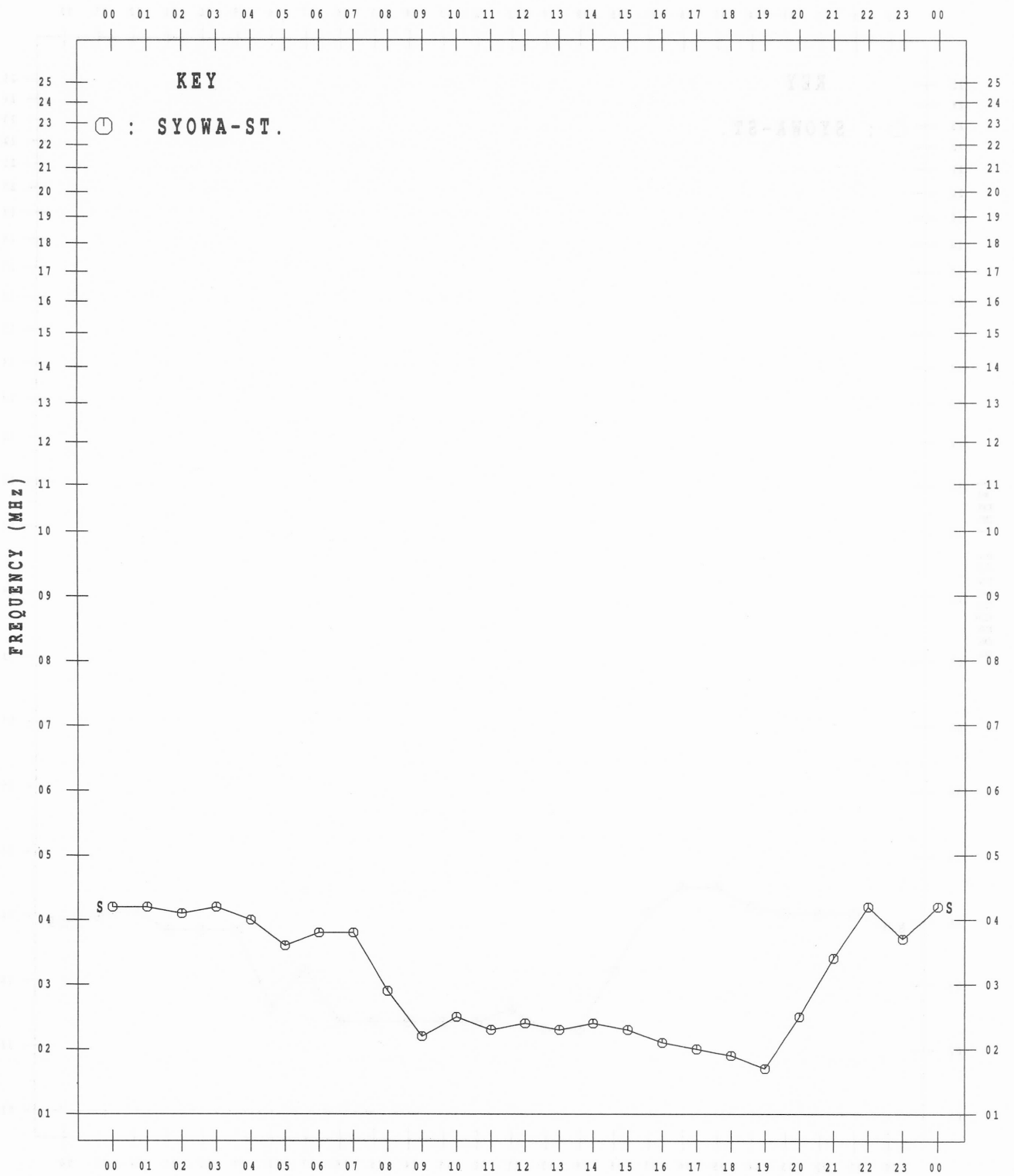


MONTHLY MEDIAN VALUES OF f_{TE}s

2001 YAM

45° E MEAN TIME

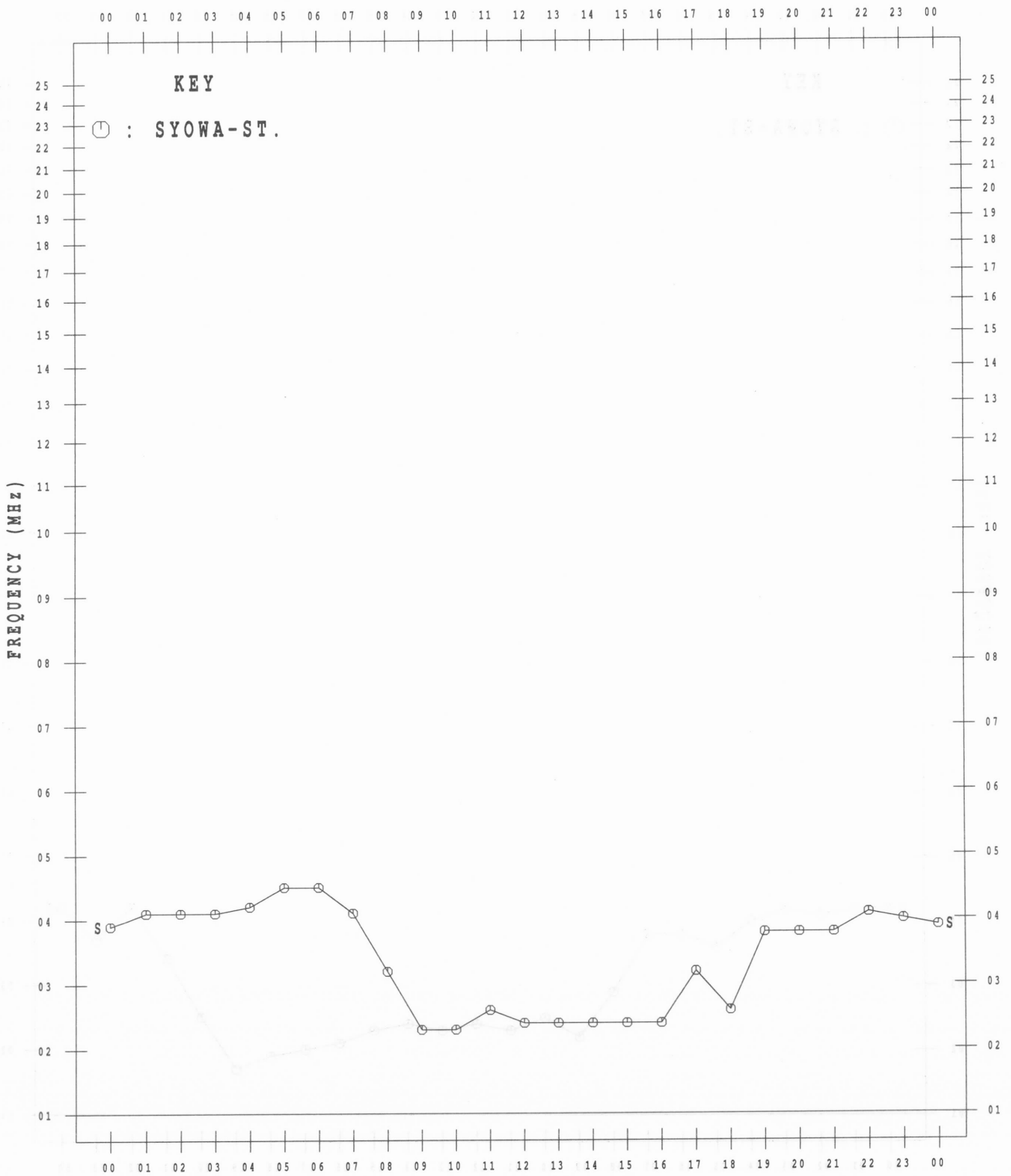
APR. 1995



MONTHLY MEDIAN VALUES OF f_{TE}s

45° E MEAN TIME

MAY 1995

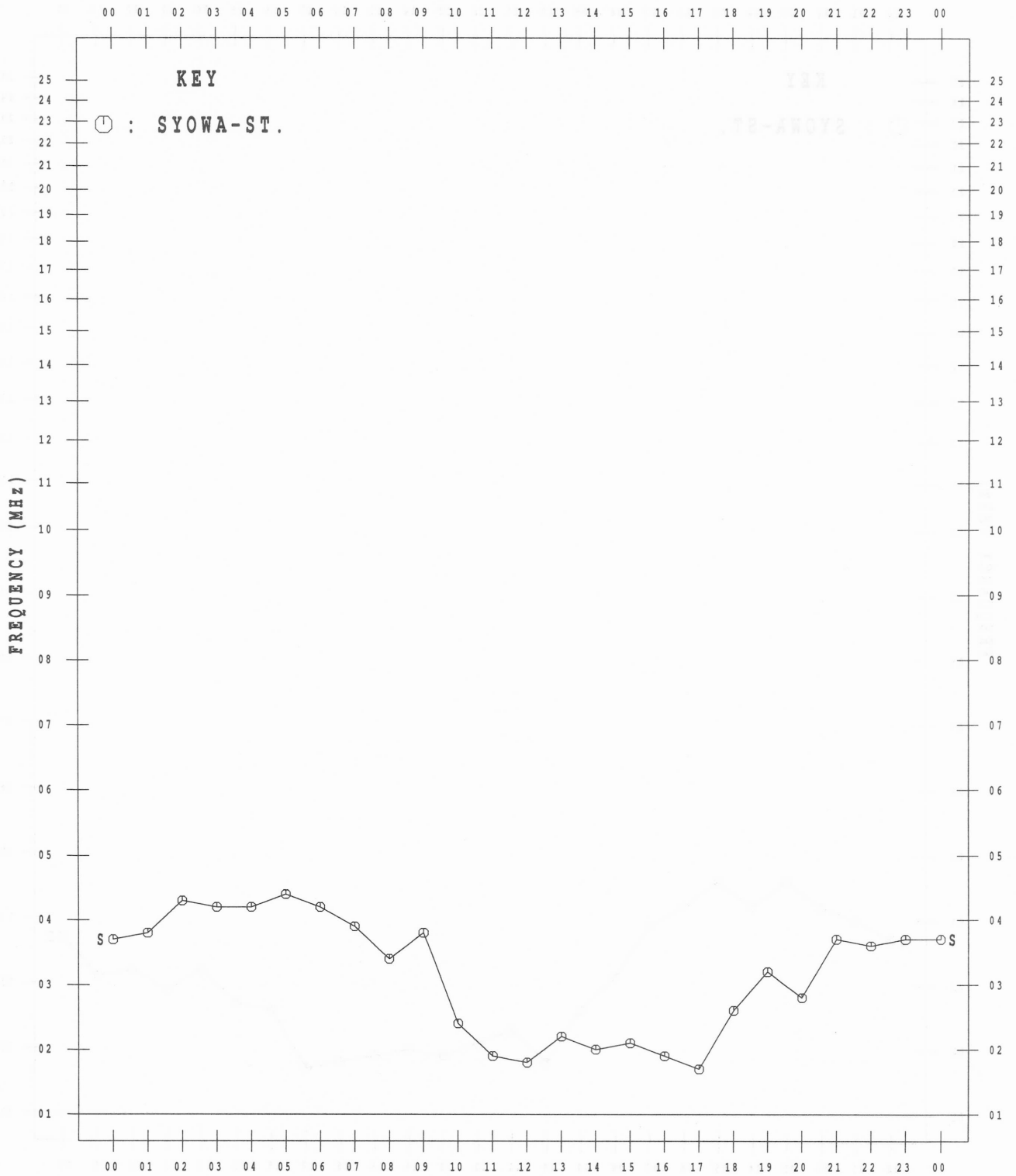


MONTHLY MEDIAN VALUES OF f_{TE}s

1995 JUN

45° E MEAN TIME

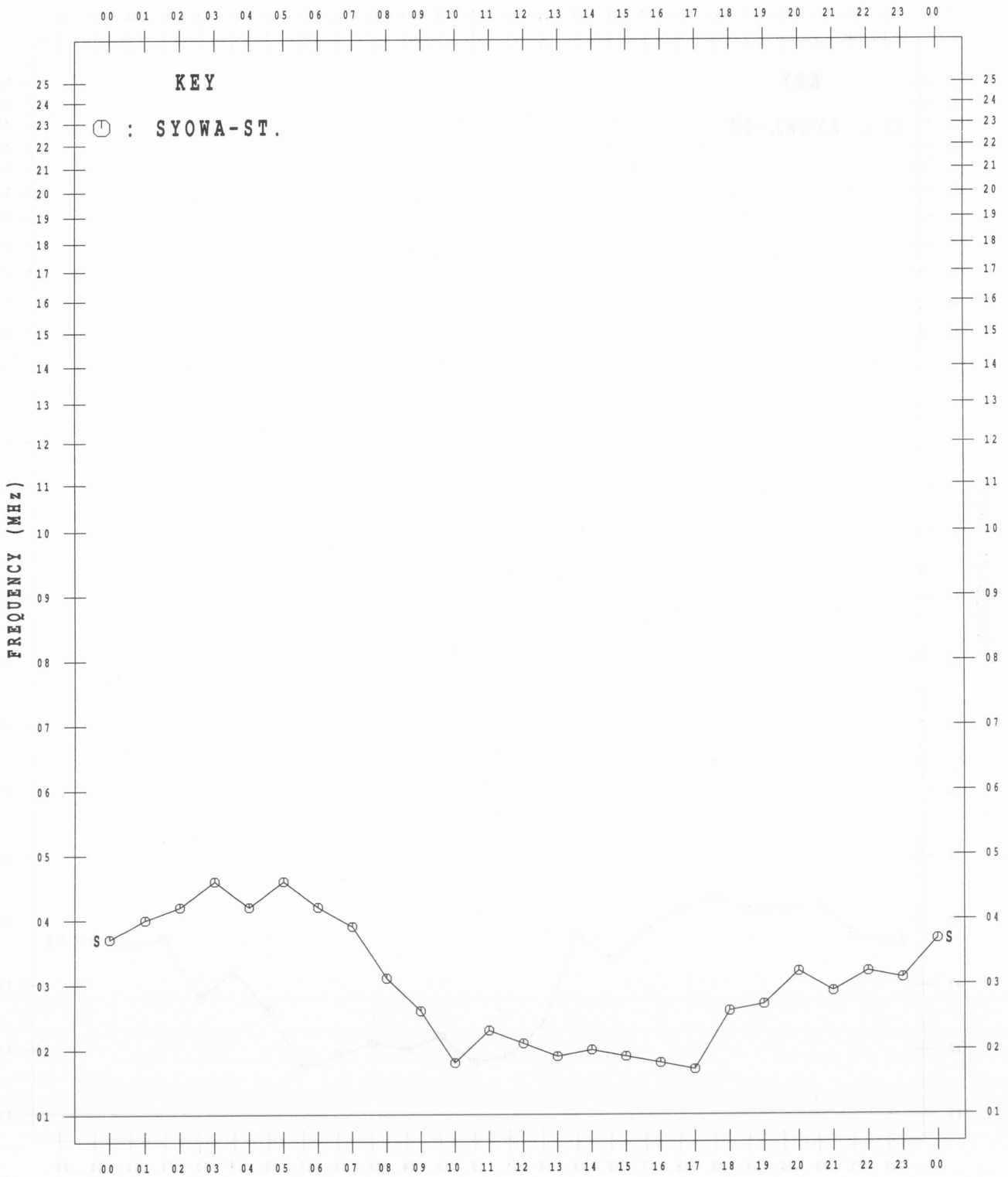
JUN. 1995



MONTHLY MEDIAN VALUES OF ftEs

45° E MEAN TIME

JUL. 1995

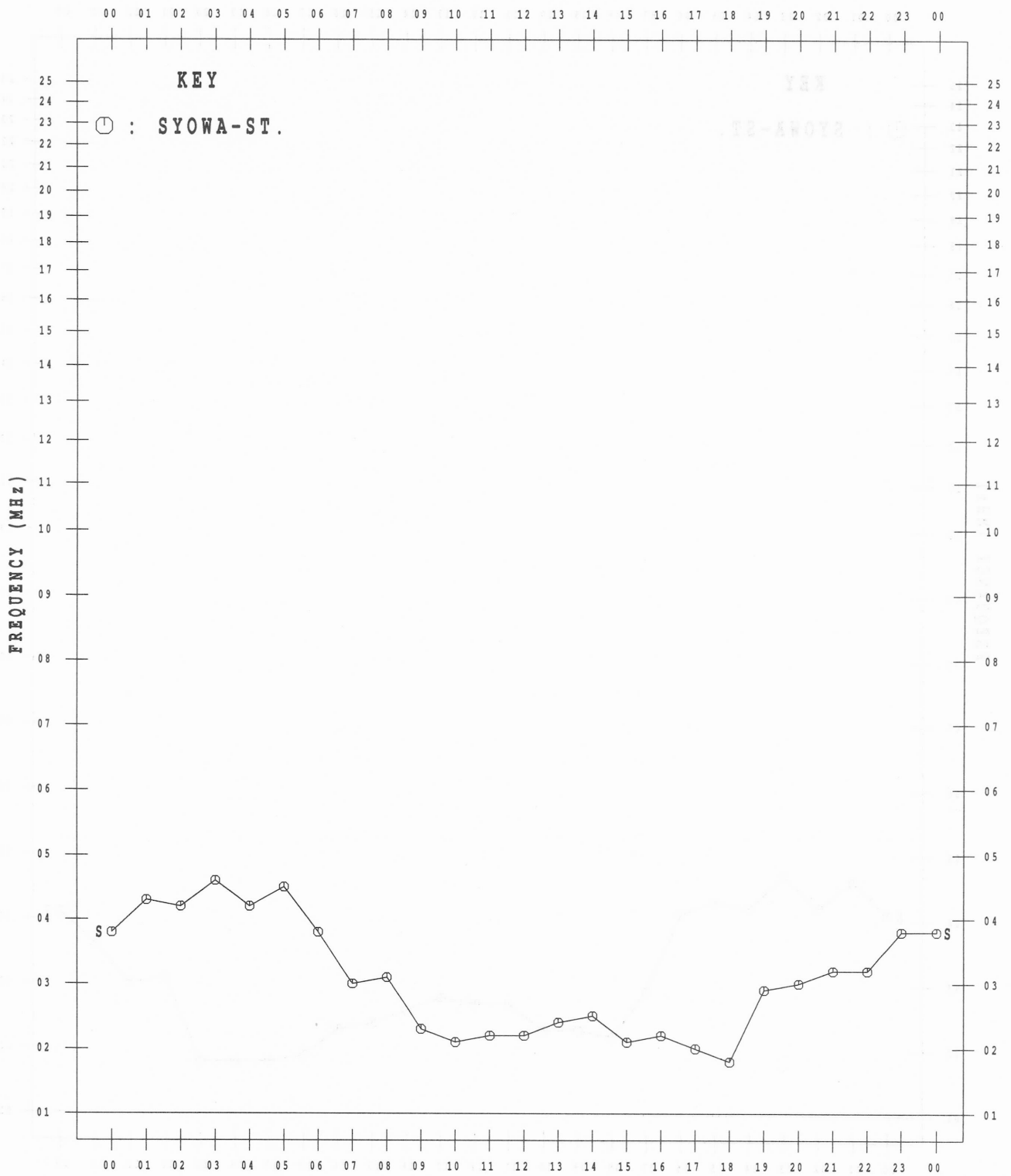


MONTHLY MEDIAN VALUES OF fteS

2001 932

45° E MEAN TIME

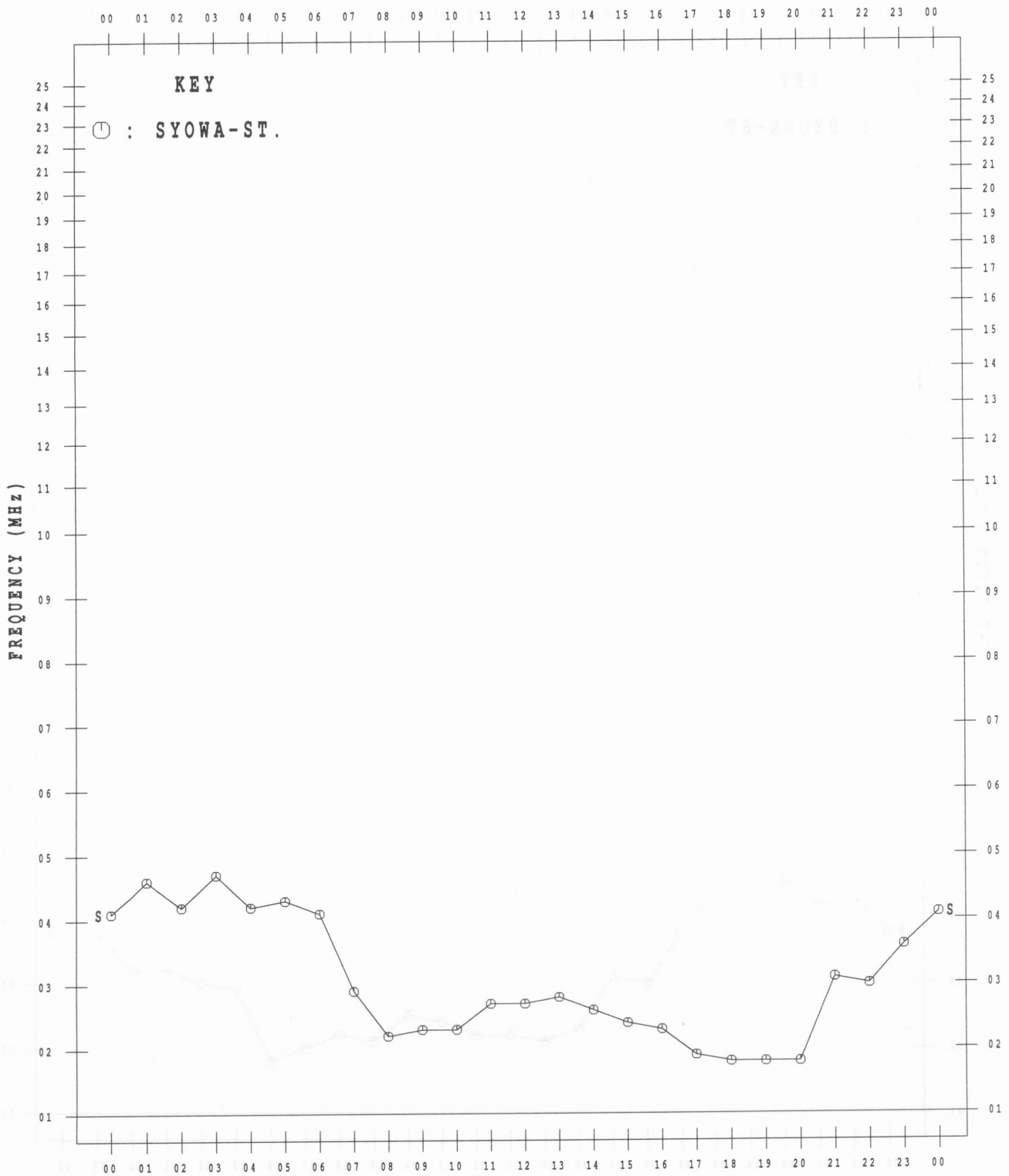
AUG. 1995



MONTHLY MEDIAN VALUES OF f_{TE}s

45° E MEAN TIME

SEP. 1995

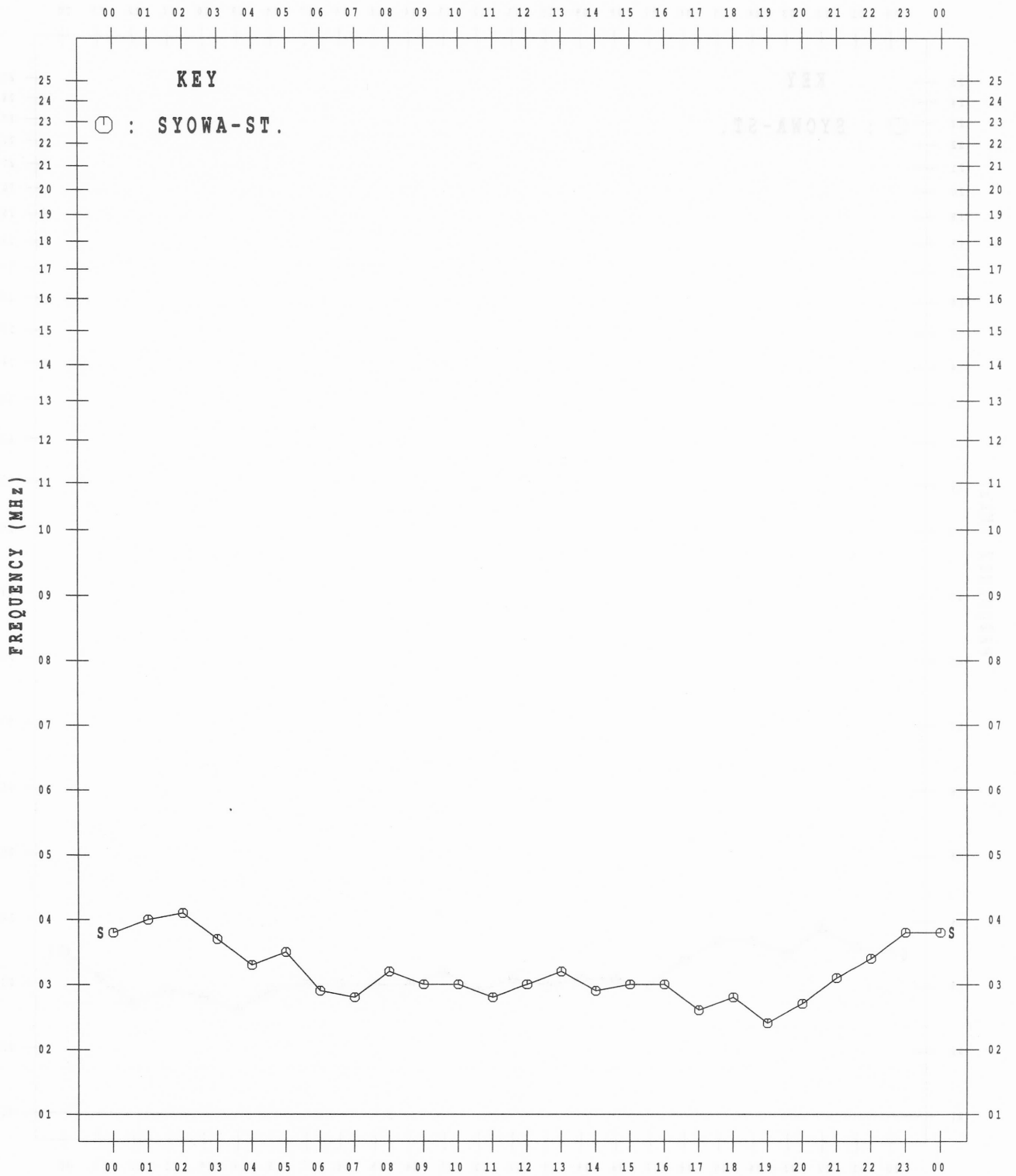


MONTHLY MEDIAN VALUES OF f_tE_s

2221 YOM

45° E MEAN TIME

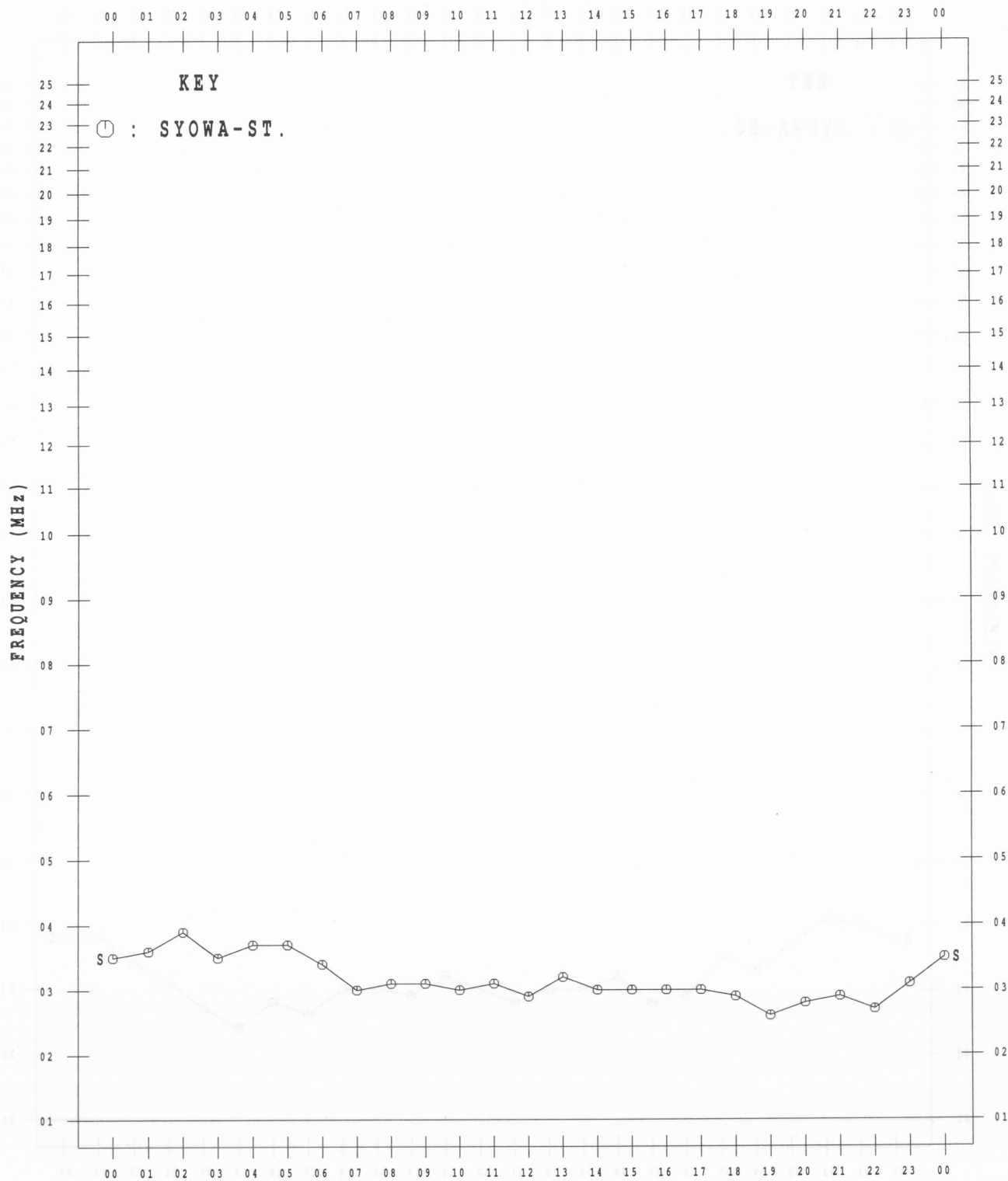
OCT. 1995



MONTHLY MEDIAN VALUES OF ftEs

45° E MEAN TIME

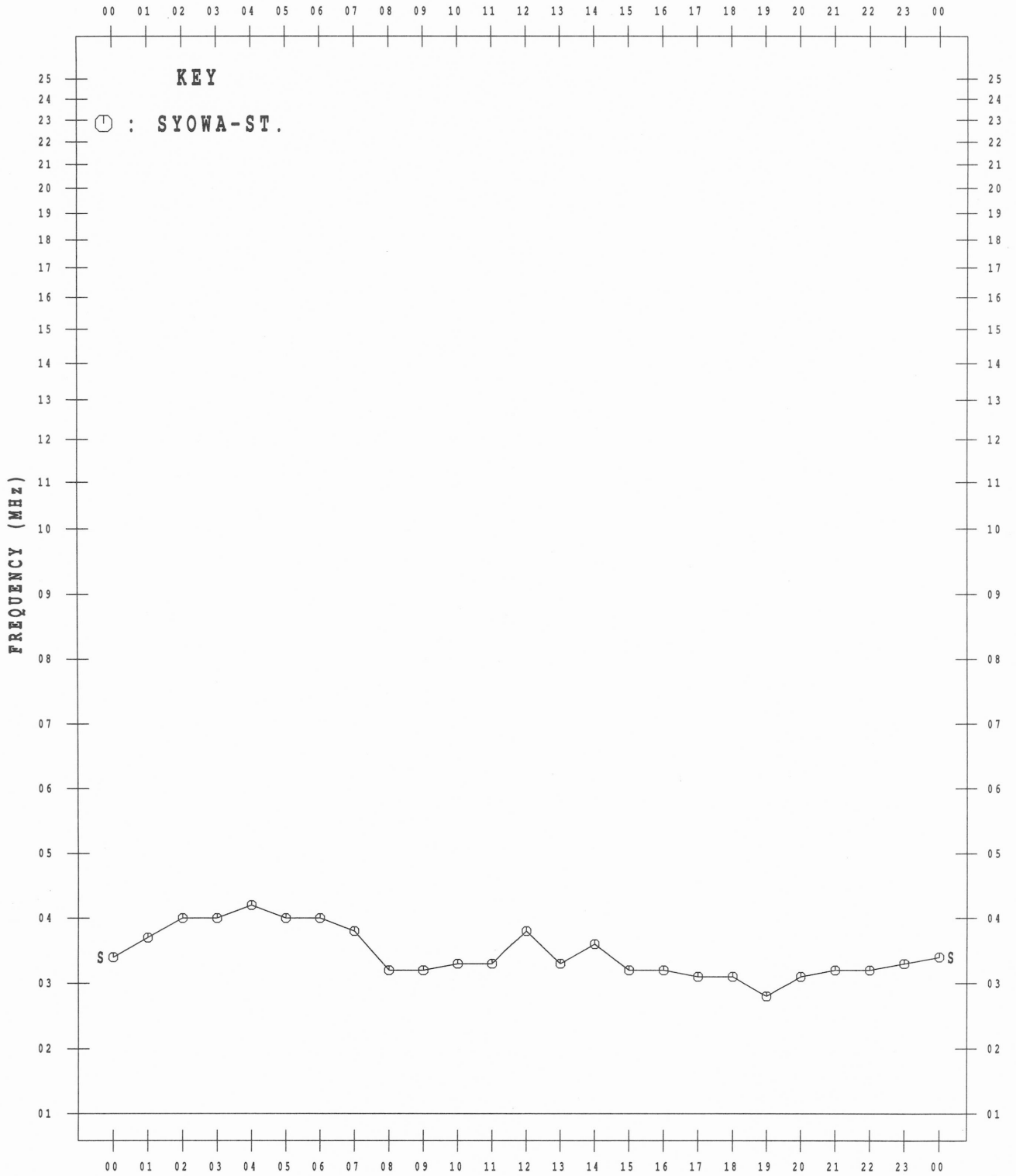
NOV. 1995



MONTHLY MEDIAN VALUES OF f_{TE}s

45° E MEAN TIME

DEC. 1995



IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)
ION. ANT.—62 January 1995—December 1995 (Not for Sale)

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〒184-8795 東京都小金井市貫井北町4丁目2-1

☎ 042(327)6911 (直通)

Queries about "Ionospheric Data at Syowa Station" should be forwarded to: The Communications Research Laboratory,
Ministry of Public Management, Home Affairs, Posts and Telecommunications, 2-1 Nukui-Kitamachi 4-chome,
Koganei-shi, Tokyo 184-8795 JAPAN.