ION. ANT.—5

IONOSPHERIC DATA AT SYOWA BASE (ANTARCTICA)

February——July 1961

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Prepared by

THE RADIO RESEARCH LABORATORIES
MINISTRY OF POSTS AND TELECOMMUNICATIONS

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO ,JAPAN.

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RADIO RESEARCH LABORATORIES
NUKUI—KITAMACHI, KOGANEI—SHI, TOKYO, JAPAN

CONTENTS

MAIN CHARACTERISTICS OF THE IONOSONDE USED AT SYOWA BASE

Item	Specification
Frequency Range	1–20 Mc/s
Transmitting Power	10 kW (peak value)
Duration of Sweep	30 sec
Transmitted Pulse width	100 μsec (variable)
Recurrence Frequency of Transmitted Pulse	50 c/s (by power frequency)
Frequency Scale	Every 1 Mc/s
Height Range	1100 km
Height Scale	Every 100 km
Total Receiver Gain	140 db
Noise Figure	About 9 (at 5 Mc/s)
Time Constant of Differential Circuit	50 μsec
Recording Method	35 mm film running and 16 mm movie picture
Power Supply	100 V AC, 3 kVA
Transmitting Antenna	20 m high vertical delta terminated by 600 Ω
Receiving Antenna	15 m high vertical delta terminated by 600 Ω

SYMBOLS AND TERMINOLOGY

All symbols and terminology in the table of ionospheric data are used in accordance with the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, September 2, 1956, and the Second Report of the Committee, May, 1957, supplementary to the First Report.

Terminology

f_0F2, f_0F1, f_0E — The ordinary-wave critical frequency for the $F2$, $F1$ and E layers respectively.

f_0Es — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

f-min — That frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$h'F$ — The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e. g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'Es$ — The lowest virtual height of the trace used to give the f_0Es.

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

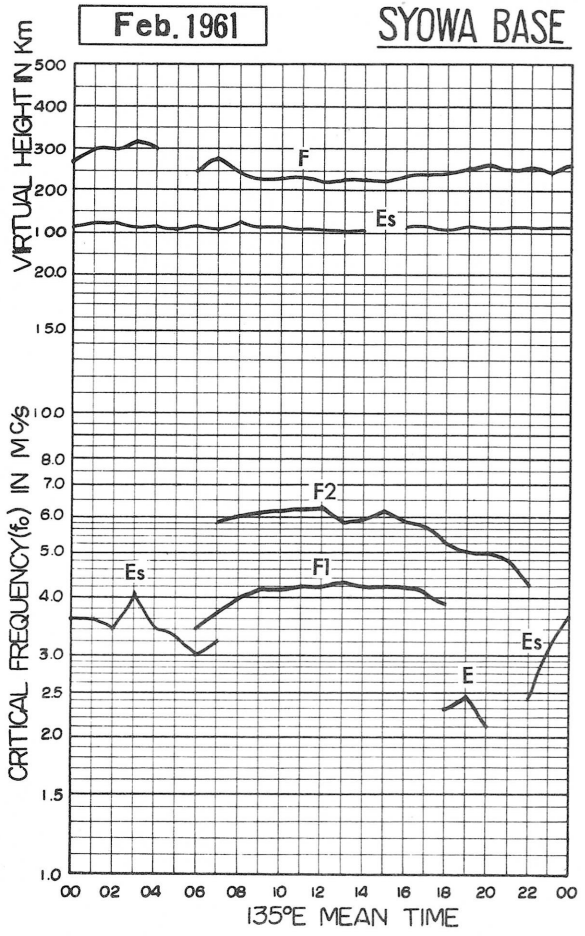
A	Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
B	Measurement influenced by, or impossible because of, absorption in the vicinity of *f*-min.
C	Measurement influenced by, or impossible because of, any non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the nomal frequency range. Used in a qualifying sense, see below.
E	Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.
F	Measurement influenced by, or impossible because of, the presence of spread echoes.
G	Measurement influenced or impossible because the ionization density is too small compared with that of a lower thick layer.
H	Measurement influenced by, or impossible because of, the presence of a stratification.
L	Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.
M	Measurement questionable because the ordinary and extraordinary components are not distinguishable.
N	Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.
O	Measurement refers to the ordinary component.
R	Measurement influenced by, or impossible because of, absorption in the vicinity of a critical frequency.
S	Measurement influenced by, or impossible because of, interference or atmospherics.
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	Intermittent trace.
Z	Third magneto-ionic component present.

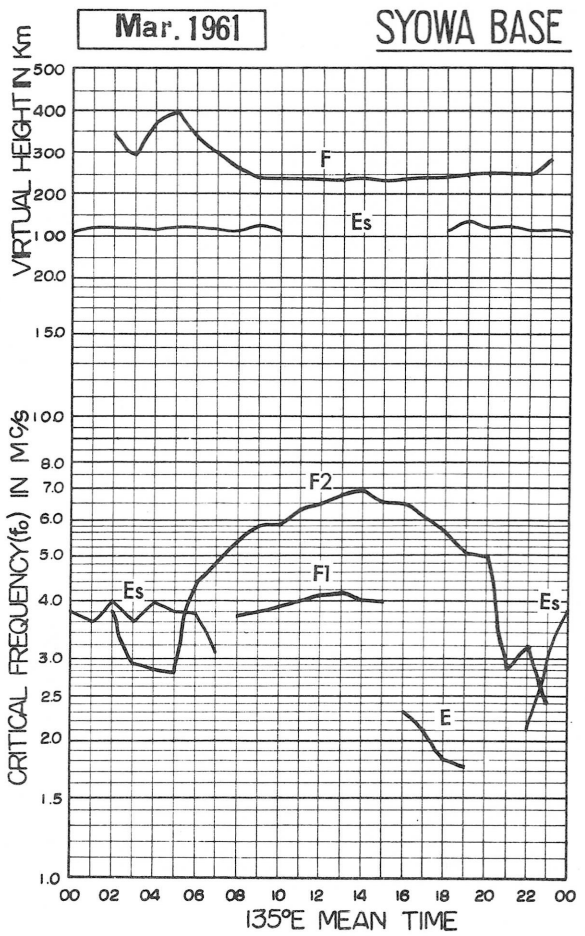
b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

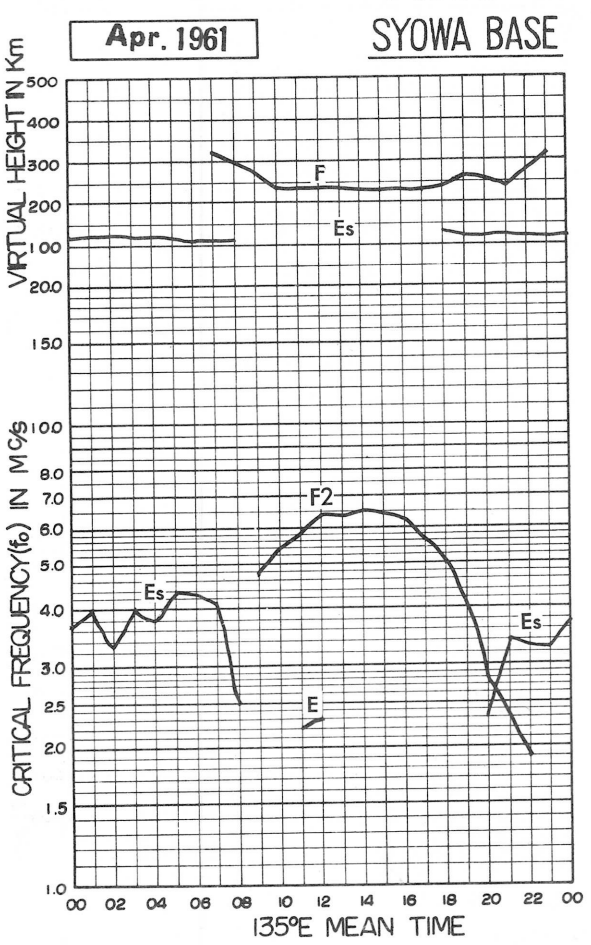
D	*greater than*.....
E	*less than*.....
I	Missing value has been replaced by an interpolated value.
J	Ordinary component characteristic deduced from the extraordinary component.
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U	Uncertain or doubtful numerical value.
Z	Measurement deduced from the third magnetoionic component.

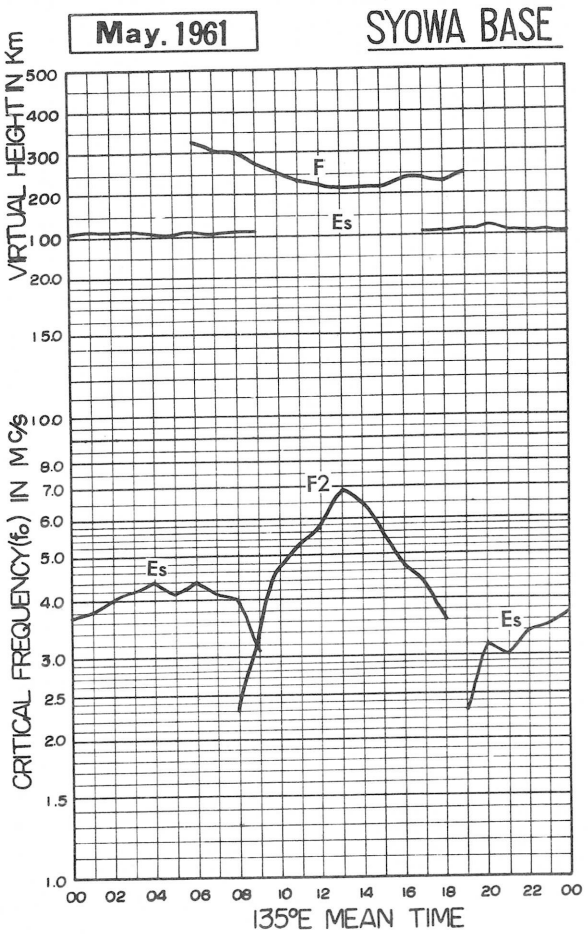
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



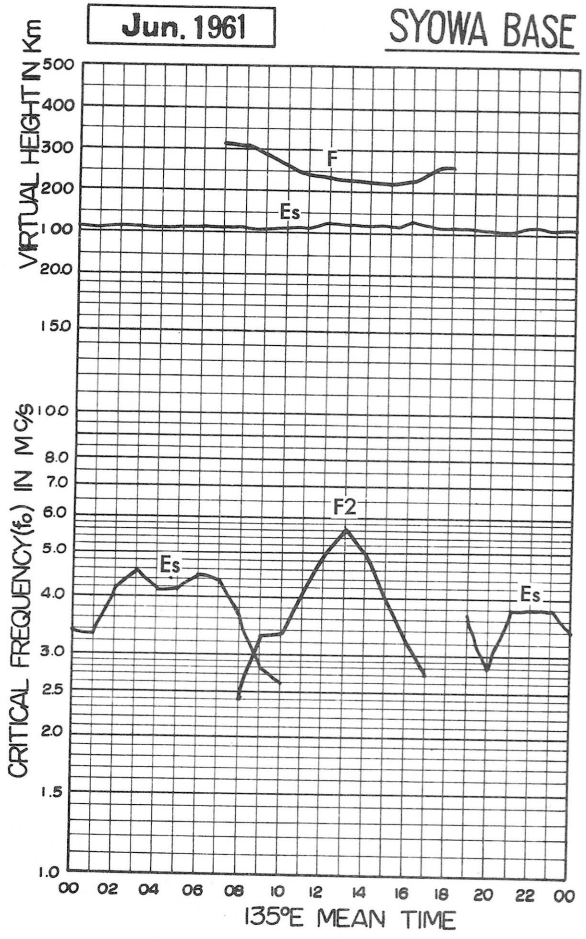


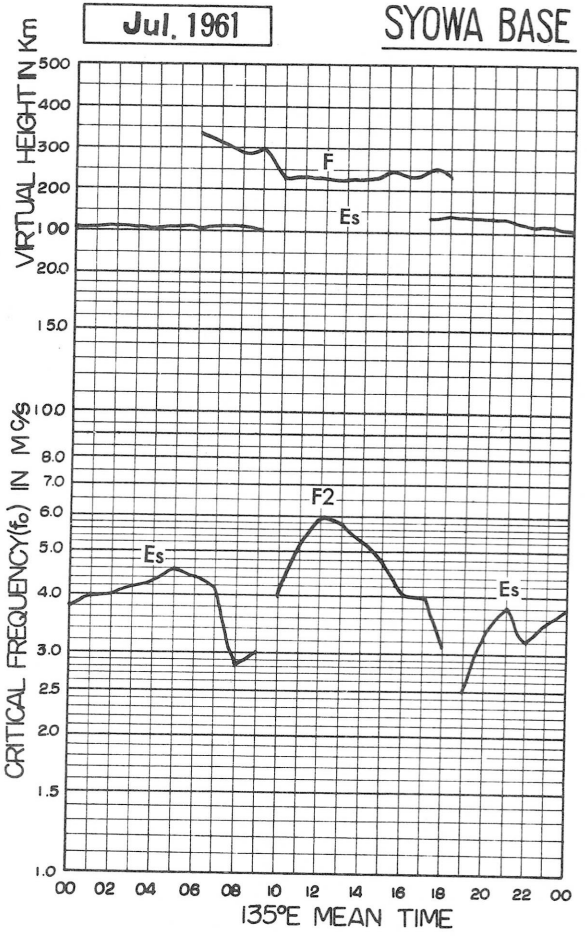
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

Feb. 1961

45° E Mean Time (G.M.T. +3h)

CHAR \ HR		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	44	44F	34	47	47	56F	61	58	60F	61	62	62	63	58	59	62	58	57F	52F	50	50	48F	42F	40F
	CNT	2	3	1	2	4	6	4	10	14	12	18	20	20	23	25	23	23	21	20	22	20	19	9	3
	Q R																								
foF1	MED		U430F				395	340	370	400	410	410	420	420	430	420	420	420L	410	390	370		370		
	CNT		1				2	11	14	16	16	19	20	19	19	17	19	15	11	5	3		1		
foE	MED	255		230	190	238	270	230		278	280		300R	U280R	295R	285R	U300R	325R	268	230	245	210	175	180	190
	CNT	2		2	3	4	3	2		2	3		1	1	1	2	1	2	2	6	6	8	2	2	2
foEs	MED	J 36X	J 36X	J 34X	J 41X	U 34	U 33	U 30	U 32	E 34G	E 33G	E 34B	E 35B	E 36B	E 35B	E 35B	E 33B	E 32B	E 29B	E 30B	E 26G	E 22G	U 24G	24	J 31X
	CNT	26	25	24	27	20	23	20	23	24	23	22	21	20	24	25	25	26	23	23	26	28	28	26	25
	Q R																								
f-min	MED	15	16	18	19	35	33	34	30	34	30	35	35	37	34	34	32	32	32	30	22	20	20	15	16
	CNT	27	27	28	28	27	28	28	28	28	28	26	27	27	28	28	26	28	27	28	27	28	28	28	28
M (3000) F2	MED	285	295F	265	270	270	255F	258	252	255F	260	260	258	265	280	270	275	275	295F	300F	302	318	310F	305F	295F
	CNT	2	3	1	2	4	6	4	10	14	12	18	20	20	23	25	23	23	21	20	22	20	19	9	3
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	270	295	298	320	300	295	U248	275	250	224	230	230	220	225	225	220	229	232	240	256	262	250	260	248
	CNT	9	8	12	11	7	4	10	11	15	18	21	19	19	21	17	21	22	20	17	22	25	18	16	10
h'Es	MED	115	120	120	110	115	110	112	105	125	110	110	105	110	105	105	100	115	120	108	120	110	110	115	115
	CNT	22	24	21	22	12	15	12	12	9	7	3	6	2	7	4	1	3	3	6	10	8	14	16	20
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

Mar. 1961

45° E Mean Time (G.M.T. +3h)

CHAR \ HR		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	26	22	38	29F	28	28	44F	48F	54F	58F	58F	63F	64	68	69	65	65	61F	56	50F	50F	28	32F	24
	CNT	1	1	5	5	6	4	5	12	13	17	19	19	20	22	22	20	21	20	20	21	13	8	5	6
	Q R																								
foF1	MED						240F	320	340L	370	380	390	400	410	415L	400L	400L	355							
	CNT						1	1	1	5	7	9	11	11	10	8	8	2							
foE	MED	190	250	170	170	170	200	235		225	228	258	275R	260	275	240	260	230	210	180	175	165	140		165
	CNT	3	3	2	3	5	3	1		3	4	2	1	2	1	1	3	6	5	4	5	2	3		2
foEs	MED	J 38X	J 36X	J 40X	J 36X	J 40X	J 38X	38	U 31	E 36G	E 32G	E 33B	E 33B	E 32B	E 33B	E 32B	E 30B	E 27B	E 30B	E 23B	E 21B	E 25B	U 16G	21	J 30X
	CNT	26	28	30	29	27	28	24	22	22	23	25	21	22	26	26	27	29	26	27	29	29	26	25	26
	Q R																								
f-min	MED	15	16	17	18	20	22	32	34	35	35	33	34	34	34	33	28	27	29	22	18	17	15	14	14
	CNT	28	30	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	28	31	31	31	30	30	29
M (3000) F2	MED	275	275	275	285F	258	258	270F	272F	278F	270F	270F	285F	280	285	298	302	315	318F	325	320F	315F	305	300F	298
	CNT	1	1	5	5	6	4	5	12	12	17	19	19	20	22	22	20	21	20	20	21	13	8	5	6
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	275	300	350	290	370	400	335	295	262	242	244	238	234	230	240	232	232	240	240	245	245	248	250	278
	CNT	3	3	5	7	10	9	8	11	12	15	18	19	20	21	21	25	26	23	26	27	23	20	11	10
h'Es	MED	110	120	120	120	115	120	120	120	115	125	110	110	120	105	115	105	102	105	110	135	120	125	115	115
	CNT	24	26	29	28	23	23	17	13	8	5	4	3	1	2	1	3	4	2	4	5	12	13	14	17
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

Apr. 1961

45° E Mean Time (G.M.T. +3h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	38R	24F	25F	27		43	32F	46F	48F	47F	54F	58F	64F	63	65	64	62F	56F	50F	U 40F	28F	23F	19	17
	CNT	1	1	4	2		1	3	4	3	11	15	19	22	18	21	19	17	14	15	10	5	3	6	3
	Q R																								
foF1	MED												380L		380L										
	CNT												2		1										
foE	MED		220		130			165	252	220	175	238	222	230	245			172							
	CNT		1		1			2	2	4	1	2	6	4	2			2							
foEs	MED	37	J 40X	J 33X	J 40X	J 38X	J 44X	43	J 41X	U 25	E 28B	E 26B	E 23B	E 32B	E 33B	E 29B	E 32B	E 28B	E 27B	E 23B	E 23B	U 26	34	33	33
	CNT	25	26	25	25	25	27	25	25	19	20	23	23	25	24	24	24	26	26	25	25	19	20	21	23
	Q R																								
f-min	MED	15	16	15	19	18	18	21	18	20	32	26	26	32	34	32	32	29	30	25	21	18	15	14	16
	CNT	28	28	28	28	28	28	28	28	28	25	28	28	28	27	28	26	27	28	28	28	28	27	28	28
M (3000) F2	MED	365R	305F	280F	295		265	255F	270F	250F	290F	310F	305F	310F	315	325	330	330F	330F	325F	U322F	310F	335F	312	305
	CNT	1	1	4	2		1	3	4	3	11	15	19	22	18	21	19	17	14	15	10	5	3	6	3
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	270	332	320	325	270	330	330	320	300	272	242	242	240	235	230	228	230	225	240	265	260	240	278	320
	CNT	3	2	5	4	1	1	3	7	11	14	20	19	21	19	17	18	24	21	24	19	10	5	6	4
h'Es	MED	120	120	120	120	120	120	110	112	108	115	120	125	108		165	125	150		130	120	122	120	118	118
	CNT	25	26	25	25	25	27	22	22	10	2	5	1	2		1	2	1		4	8	10	14	16	20
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

May. 1961

45° E Mean Time (G.M.T. +3h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	32			47R		42	37F	37	23R	33F	47	52	57	68	65	56F	47F	43F	36F	24		27F		33R
	CNT	2			2		2	3	4	5	8	10	14	12	9	11	13	12	12	8	3		1		1
	Q R																								
foF1	MED																								
	CNT																								
foE	MED	150								115	148	195	200				E		140		150				
	CNT	1								1	2	6	1				1		1		1				
foEs	MED	37	J 38X	J 40X	J 42X	J 44X	J 41X	J 44X	J 41X	J 40X	31	E 22B	E 27B	E 30B	E 32B	E 30B	E 24B	E 28B	E 27B	E 19B	23	32	30	34	35
	CNT	28	29	29	27	28	24	24	23	23	19	20	18	22	21	22	25	23	23	20	15	10	14	20	23
	Q R																								
f-min	MED	15	16	17	18	22	18	19	18	31	32	32	38	36	41	34	32	30	28	22	B	B	B	17	16
	CNT	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	30	31	31	31	31	31
M (3000) F2	MED	335			338R		275	285F	295	300R	302F	330	342	338	350	355	355F	335F	335F	332F	355		360F		290R
	CNT	2			2		2	3	4	5	8	10	14	12	9	11	13	12	12	8	3		1		1
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	250	258	262	320	298	370	325	305	300	U272	250	230	225	215	215	212	230	240	225	250	282	260	300	370
	CNT	3	6	4	3	2	3	5	8	10	14	15	13	17	17	19	22	21	20	16	7	2	1	3	1
h'Es	MED	105	110	110	110	110	105	108	105	108	110	115	125	115	112	120	145	110	105	115	112	122	105	105	110
	CNT	27	29	29	27	28	24	24	21	20	11	1	2	2	2	2	3	3	4	4	8	10	12	20	23
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

Jun. 1961

45° E Mean Time (G.M.T. +3h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	30			30	18	31	40F	43	24	31F	33	40	49F	57	50F	40	32	27	26F	17		17		
	CNT	1			3	1	2	1	3	5	3	9	12	10	7	11	8	10	6	1	1		1		
	Q R																								
foF1	MED																								
	CNT																								
foE	MED										E	E		160	145R	E									
	CNT										1	2		1	1	2									
foEs	MED	J 34X	J 33X	J 42X	J 46X	J 41X	J 41X	J 45X	J 44X	J 36X	28	26	E 27B	E 23B	E 24B	E 23B	E 22B	E 21B	E 24B	E 23E	J 37X	J 28X	J 38X	J 38X	J 38X
	CNT	22	26	26	26	23	23	23	25	22	17	19	20	20	18	20	18	17	18	17	12	11	12	18	16
	Q R																								
f-min	MED	13	15	15	15	22	20	22	22	20	25	20	26	23	32	32	24	32	33	30	B	B	B	24	21
	CNT	27	26	26	26	27	26	25	27	27	29	28	27	27	26	27	27	26	29	29	29	28	28	28	27
M (3000) F2	MED	315			315	300	288	285F	275	310	305F	320	345	335F	335	335F	320	318	322	320F	345		365		
	CNT	1			3	1	2	1	3	5	3	9	12	10	7	11	8	10	6	1	1		1		
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	250	330	232	252	U288B	350	315	310	308	285	264	242	230	225	221	215	222	250	262	265	200	248	360	250
	CNT	2	1	2	2	2	5	2	5	6	7	14	16	19	17	18	17	14	11	10	2	1	2	2	1
h'Es	MED	110	110	110	110	110	110	110	110	110	105	108	110	125	120	120	120	130	120	115	115	108	105	120	110
	CNT	21	25	26	26	23	22	22	23	19	13	12	9	7	6	3	3	3	7	7	11	10	11	16	16
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: SYOWA BASE

Jul. 1961

45° E Mean Time (G.M.T. +3h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	17	17	43F			18F	42	30	32F	27	40	52	60F	58F	52	48	40F	40	31	22F				
	CNT	1	1	1			1	1	2	1	3	4	4	4	7	5	5	7	5	4	1				
	Q R																								
foF1	MED																								
	CNT																								
foE	MED									185R							230	E							
	CNT									1							1	1							
foEs	MED	J 38X	J 40X	J 40X	J 42X	J 43X	J 46X	44	42	J 28X	30	E 23B	E 24B	E 24B	E 22B	E 27B	E 32B	E 24B	E 27B	E 22B	25	U 34	38	J 32X	J 35X
	CNT	23	23	23	22	22	22	19	19	14	12	8	9	9	14	15	17	16	16	15	13	10	12	16	22
	Q R																								
f-min	MED	17	20	19	19	21	22	35	32	D 46B	B	B	B	B	B	44	41	38	33	27	D 61B	B	B	39	24
	CNT	28	28	27	29	29	28	29	30	30	29	30	29	30	30	30	29	29	28	26	28	29	29	29	30
M (3000) F2	MED	335	355	350F			305F	370	292	325F	310	330	358	355F	350F	350	340	335F	340	350	350F				
	CNT	1	1	1			1	1	2	1	3	4	4	4	7	5	5	7	5	4	1				
M (3000) F1	MED																								
	CNT																								
h'F2	MED																								
	CNT																								
h'F	MED	205	280	295A	238	300	272	330	315	280	300	225	228	225	225	225	245	230	250	230	250		225	208	290
	CNT	1	2	3	2	3	2	4	4	5	5	3	6	5	10	9	7	13	12	12	2		1	2	3
h'Es	MED	110	110	110	105	105	110	105	110	110	105	115	110	120	105	138		118	130	140	128	130	125	118	118
	CNT	23	23	22	22	22	22	18	18	11	9	3	1	1	1	2		2	4	4	10	9	12	16	20
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA

FEB. 1961

foF2 (0.1)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N, Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F 44	F	F 54	F	57	Z 66	65	F 72	F	F 83	73	74	F 73	74	69	67	65	F 62	62	63	F 55	F	B
2	A	F	F	F	F	J F 63	F	F	J F 82	F 78	77	73	75	68	65	64	64	61	65	61	60	56	54	50
3	48	50	34	40	F	F 68	J F 86	88	J F 94	F	F 96	95	93	87	89	Z 83	F 84	F 79	F	B	F	J R 48	U R 49	J F 40
4	F	F	F	F	F	F	F	R	F 51	F	F 61	F 65	F 67	F	F 66	F 65	F 64	54	B	R	A	A	A	B
5	A	F	F	R	R	F	F	B	B	R	R	B	B	B	B	B	B	F	F	F 46	48	F	F 42	F
6	F	F	F	F	F	F	F	F	F	F	F	F 62	F 62	F 65	F 63	F 54	57	F 55	F 52	F 43	F	F 44	F 44	A
7	A	A	F	R	R	F	A	R	B	B	S	48	R	42	F 48	F 53	R 55	F 57	F 59	Z 56	F	F	F 41	F
8	F	A	B	R	B	B	B	R	F 46	F	40	F 46	46	49	49	F 48	52	F 52	F 48	F 47	F 48	44	R	A
9	R	A	A	A	A	B	R	A	A	A	R	54	F 48	F 50	50	55	56	F 53	F 50	47	F 45	U R 41	F	F
10	F	F	A	F	B	A	A	U A 44	F 56	V 61	58	58	58	55	52	50	52	F 55	F 51	51	50	F 46	B	R
11	A	F	F	F	F	F	A	F	F	F	F 63	58	52	55	55	58	F 58	F 54	U F 46	47	F 51	F 48	F	F
12	R	R	F	F	F	F	F	F 49	F	F	F	F 63	64	61	60	58	55	C	57	57	F 59	R 58	A	R
13	F	F	F	F	F	F	F	J F 70	F 70	F 65	71	F 74	72	B	B	F	R	F 48	B	F	R	A	A	R
14	R	F	F	F	F	F	F	58	59	52	52	51	56	56	54	C	F 51	J F 48	48	44	45	48	F 44	R
15	C	C	A	A	R 49	J F 50	F 54	F 54	60	61	63	66	66	V 64	64	69	R	F 59	52	53	58	F 54	C	F
16	A	F	F	F	A	R	B	F	52	F 52	F 54	B	B	F 50	B	F 83	F 53	B	F 41	42	F	F 37	R	R
17	R	R	R	F	B	40	B	F 58	60	62	63	62	F 60	F 58	54	66	B	F	F	F	F	A	R	A
18	A	A	A	A	B	B	B	B	R	R	B	B	B	B	52	F	58	B	43	F 48	F	F	R	R
19	R	R	R	R	B	B	F	F 55	F	F 61	R 58	56	B	58	56	52	F 51	B	F 55	45	38	V 30	22	F
20	R	A	F	A	A	F	F	B	B	F 48	B	F 51	B	B	58	62	60	B	B	F	30	R	R	A
21	A	A	B	A	F 44	B	B	B	B	B	F 50	B	B	J R 59	59	60	64	52	B	43	45	R	B	A
22	A	F	F	F	50	B	B	B	47	J F 52	F 53	B	F 58	F 58	58	S	59	F 57	47	40	34	33	27	R
23	R	J F 30	B	A	B	F 55	F	F	F 62	B	C	C	C	F 55	58	57	F 56	F 58	F 52	55	F 53	F 54	F	A
24	A	B	F	F	F 45	R	56	59	B	B	B	B	F 53	F 55	59	57	55	51	F 47	51	50	F 48	F 42	F 40
25	J F 41	F	F	F	F	F	F	F	F	65	67	67	67	66	67	F 64	F 60	F 58	F 60	59	52	F 52	F	F
26	R	R	R	R	B	A	R	F	F 71	F	F 73	F	67	68	67	63	62	61	58	54	53	53	F	F
27	K	A	A	F	F	F	B	A	A	F	F	74	72	71	63	69	71	Z 78	66	67	60	J F 62	F	F
28	F	R	F	R	A	F	B	B	R	47	51	F 50	54	57	60	F 63	F	58	B	R	47	F	F	A
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	2	3	1	2	4	6	4	10	14	12	18	20	20	23	25	23	23	21	20	22	20	19	9	3
MED	44	F 44	34	47	47	F 56	61	58	F 60	61	62	62	63	58	59	62	58	F 57	F 52	50	50	F 48	F 42	F 40
UQ		47			50	F 63	76	65	F 71	64	71	70	70	66	64	66	63	F 59	58	56	56	F 54	F 44	45
LQ		F 37			F 44	F 50	55	F 54	52	F 52	53	52	55	55	54	56	55	F 53	F 48	45	45	44	F 41	F 40

IONOSPHERIC DATA

FEB. 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L 390	400	420	430	440	L 450	L 490	460	L 490	L 470	L	L	L			L	A	B	B
2	A	A			L	400	410	420	420	H 440	H 450	460	460	480	L 480	L 460	L 450	L	L	L	L			
3					L	B	F 430	440	L 430	L 470	L	L 490	410	470	L	L 450	L 460	430					A	A
4								R	U R 400	R	430	430	450	440	F 430	450	A	410	B	A	A	A	L	B
5	A	U F 430	L						B	R	A	B	B	B	B	B	B	400	U L 400	L		L	L	L
6	L	F	A				U R 400	F 370	F 400	F 410	F 420	430	430	440	450	L 440	430	L 420	380	370	L	L	L	A
7							A	B	B	B	S	U R 420	430	R 430	F 420	420	L 430	H 420	F 390	L	L			
8							B		U F 390	F 390	U R 400	400	420	420	420	420	410	U L 420	L 380	L				
9											U R 400	F 410	H 420	420	420	420	L 420	L 410	L	L 350				
10									F 420	R 400	H 420	U R 420	420	F 420	L 440	F 430	L 420	F 390	L					
11										R	400	H 420	H 420	420	420	F 410	L 410	B	B					
12							330	340	F 400	F 410	F 420	420	430	U R 420	L 420	420	L	C	L					
13							340	370	L 400	L 400	410	410	420	B	B	400	400	F 380	B					
14							360	370	370	380	380	400	410	C	420	C	390	L	L					
15						R	330	350	380	R 390	R 400	420	R 420	420	410	L 420	B	B	B					
16							B	370	380	390	400	B	B	R 380	B	B	390	B	410	420	A	370		
17					B	B	B	H 370	H 380	390	400	410	420	430	400	410	B							
18							B				B	B	B	B	B	B	380	B	L	L				
19							320	B	H 380	H 410	B	420	B	430	B	410	400	B	L					
20								B	B	B	B	U B 420	B	B	B	B	B	B	B	B				
21						B	B	B	B	B	410	B	B	B	B	B	L 420	390	B	L				
22							B	B				B	H 420	L 430	B	S	L	380	L					
23						B	320	350	380	B	C	C	C	420	420	L 410	U L 420	L	B					
24					A	B	B	370	B	B	B	B	420	430	L 420	U L 420	L	L						
25						L	340	L 370	L	L 420	410	L 450	L	L	B	L 400	L		B					
26								400	L 420	L 410	430	430	430	430	440	L	L	L						
27							B			U L 420	420	L	440	L	L	L 450	L	L						
28							B	B		B	400	R 390	B	B	420	L 420	L	B	B					
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		1				2	11	14	16	16	19	20	19	19	17	19	15	11	5	3		1		
MED		U F 430				395	340	370	400	410	410	420	420	430	420	420	L 420	410	390	370		370		
UQ							400	400	420	420	420	430	430	435	440	435	L 425	420	400	395				
LQ							330	370	380	390	400	410	420	420	420	410	400	390	380	360				

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

FEB. 1961 | foE (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	R	R	B	B	B	B	B	B	B	B	B	R	B	R	210	A	B	B
2	A	A	B	A	A	A	250	A	295	R	A	B	A	A	B	A	A	A	A	250	220	B	B	B
3	B	B	B	A	B	B	B	R	B	B	R	B	B	A	B	B	R	R	B	B	190	R	A	A
4	A	A		190	A	A	A	B	A	290	B	B	B	B	A	B	A	R	B	B	A	A	B	B
5	B	A	U R 170	A	300	A	R	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	A
6	A	A		R 180	U R 210	B	B	R	B	B	B	B	B	B	B	R	B	U R 280	R	U R 325	250	A	A	A
7	U A 330	B	290	B	B	B	B	B	B	B	S	B	B	B	B	B	B	B	B	B	220	U B 150	B	A
8	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	U R 290	R	R 240	R 240	B	R 200	A	B
9	A	A	A	A	B	B	B	B	B	B	B	B	B	R	R	R	B	B	B	250	F 210	B	F 190	B
10	180			A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	R 245	220	B	B		
11				A	A	A	B	A	R	U R 280	R	R	R	R	R	B	B	B	B	B	B	B		
12				A	U R 265	U R 270	210	A	260	280	B	R 300	B	R 295	R 290	U R 300	R	C	210	220	170	B		
13				R	B	B	B	R	R	B	B	A	R	B	B	B	R 360	B	B	F	A	B		
14				A	F	A	R	B	B	R	B	R	U R 280	C	U R 280	C	B	255	B	A	A	B		
15				B	B	R	R	R	B	R	B	B	B	A	R	B	B	B	B	B	B	B		
16				A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	230	A	A	A		
17				B	B	B	B	R	R	B	B	B	B	B	B	R	B	B	220	B	R	A		
18				A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B		
19				B	B	B	R	B	R	R	B	B	B	B	B	B	B	B	B	B	B	B	170	180
20	R			A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
21				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	A			200
22		B		A	B	B	B	B	B	B	B	B	B	B	B	S	B	B	B	A	B	B		
23				B	B	B	B	B	B	B	C	C	C	B	B	B	B	B	B	B	B	B		
24			R	H 220	A	B	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
25				B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
26				B	B	B	B	B	B	R	B	B	B	B	B	R	B	B	B	B	R 200	B		
27				B	200	A 200	B	B	B	B	R	A	R	B	B	B	R	B	R 230	B	B	A		
28				B	B	370	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	B		
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	2		2	3	4	3	2		2	3		1	1	1	2	1	2	2	6	6	8	2	2	2
MED	255		230	190	238	270	230		278	280		R 300	U R 280	R 295	R 285	U R 300	R 325	268	230	245	210	175	180	190
UQ				205	282	320				285									R 240	250	220			
LQ				185	205	235				280									220	220	195			

IONOSPHERIC DATA

FEB. 1961 | foEs (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	E B 34	E B 36	36	36	G	E B 36	E B 34	E B 35	38	E B 38	J X 50	E B 35	E B 34	E B 31	G	E B 29	G	21	J X 31	E B 19	B
2	37	39	E B 36	J X 41	41	43	28	28	G	G	35	40	34	J X 36	J X 47	29	32	27	J X 33	G 23	G	E B 19	E B 18	E B 15
3	E B 17	E B 20	E B 18	E B 21	E B 25	E B 35	E B 35	36	E B 34	E B 33	G	E B 37	E B 37	24	E B 39	E B 34	G	G	37	B	23	J X 37	50	38
4	32	36	J X 43	22	24	34	39	38	J X 38	G	J X 65	E B 36	E B 35	J X 60	J X 51	E B 32	J X 82	G	B	J X 39	J X 69	J X 97	J X 70	B
5	J X 41	J X 51	J X 19	J X 64	J X 43	J X 69	26	J X 78	B	42	45	B	B	B	B	B	B	E B 35	E B 30	27	E B 34	E B 31	27	J X 26
6	J X 28	27	23	G	G	29	E B 34	G	E B 31	B	B	E B 33	E B 36	E B 35	E B 33	G	E B 32	G	35	35	G	J X 22	24	J X 51
7	J X 37	40	J X 41	B	J X 44	E B 38	J X 44	38	J X 83	B	S	E B 35	E B 35	E B 33	E B 32	E B 37	E B 38	G	30	E B 34	G	G	E B 19	J X 30
8	J X 81	J X 67	B	41	B	B	B	40	40	E B 34	E B 33	E B 32	E B 30	E B 33	E B 33	E B 32	G	G	G	G	E B 25	G	28	J X 64
9	35	J X 46	J X 46	35	40	J X 39	35	J X 35	J X 48	47	E B 35	E B 33	E B 32	G	G	G	E B 33	E B 34	E B 24	G	G	E B 34	23	E B 22
10	G	24	J X 78	J X 65	B	J X 42	50	39	J X 33	E B 35	E B 33	31	E B 40	E B 38	E B 33	E B 33	E B 34	J X 51	J X 43	G	E B 26	E B 20	B	26
11	J X 42	35	34	J X 82	J X 50	J X 20	64	J X 48	J X 34	G	G	G	G	G	G	E B 30	E B 30	E B 43	E B 38	E B 37	E B 32	J X 54	J X 53	31
12	26	J X 33	J X 29	J X 30	G	31	23	27	G	G	E B 32	G	B	34	35	G	33	C	27	G	G	E B 33	E B 14	E B 14
13	31	J X 30	J X 27	34	E B 21	E B 20	E B 22	G	G	E B 34	E B 35	28	G	B	B	E B 33	G	E B 34	B	F	28	48	J X 40	J X 34
14	J X 37	J X 36	J X 29	46	F	33	36	E B 29	E B 34	30	E B 31	29	42	E C 32	31	C	E B 30	29	E B 27	26	J X 41	E B 19	E B 13	J X 32
15	C	C	J X 73	J X 46	J X 41	G	G	G	G	G	G	E B 35	E B 37	24	G	E B 34	E B 43	E B 38	E B 38	G	25	J X 22	J X 37	J X 41
16	J X 78	J X 41	J X 42	J X 46	J X 69	J X 48	B	E B 34	E B 33	E B 35	E B 36	B	B	E B 33	B	E B 43	E B 34	B	J X 28	21	J X 38	23	J X 29	30
17	J X 34	J X 32	J X 33	33	B	E B 35	B	G	G	E B 28	E B 30	E B 35	E B 35	27	E B 32	G	B	E B 32	G	E B 31	G	J X 48	J X 48	J X 68
18	J X 60	J X 67	J X 65	J X 66	B	B	B	B	46	44	B	B	B	B	E B 42	E B 42	E B 31	B	E B 33	E B 26	G	27	25	J X 31
19	J X 40	J X 41	41	J X 40	B	B	J X 32	J X 41	G	J X 33	E B 44	E B 32	B	E B 42	E B 48	E B 31	E B 33	B	E B 32	26	E B 21	J X 21	G	G
20	J X 25	J X 36	J X 46	J X 83	J X 41	G	E B 34	B	B	E B 42	B	E B 42	B	B	E B 43	E B 38	E B 41	B	B	42	E B 22	28	27	J X 35
21	J X 48	52	B	J X 54	E B 36	B	B	B	B	B	E B 33	B	B	E B 58	E B 44	E B 48	E B 28	E B 29	B	G	J X 36	J X 35	B	60
22	J X 46	J X 61	J X 81	J X 68	E B 42	B	B	B	E B 33	E B 29	E B 38	B	E B 37	E B 36	E B 47	S	E B 37	E B 26	E B 32	23	E B 20	E B 18	J X 13	31
23	40	58	B	M 46	B	E B 32	E B 23	E B 28	E B 34	B	C	C	C	E B 37	E B 34	E B 35	E B 32	E B 36	E B 42	E B 33	E B 21	E B 26	E B 14	J X 36
24	39	B	G	G	36	44	E B 38	G	B	B	B	B	E B 39	E B 37	E B 39	E B 35	E B 31	E B 33	E B 19	E B 22	E B 20	E B 14	E B 14	B
25	E B 12	16	16	E B 14	G	E B 18	E B 19	E B 36	E B 34	E B 28	E B 37	E B 39	E B 38	E B 35	E B 42	E B 37	E B 34	E B 32	E B 37	E B 34	E B 34	E B 28	24	21
26	E B 19	J X 36	J X 41	J X 42	B	J X 49	J X 46	J X 36	J X 32	G	E B 34	E B 36	E B 34	E B 34	G	E B 32	E B 28	E B 27	E B 23	E B 20	G	E B 16	E B 13	E B 13
27	J X 28	J X 36	J X 33	J X 32	24	J X 22	B	J X 41	48	48	G	27	G	E B 35	E B 34	E B 31	G	E B 27	G	E B 29	E B 19	J X 41	E B 14	J X 26
28	J X 28	J X 30	J X 32	J X 30	J X 50	J X 41	B	B	46	J X 40	E B 35	E B 38	E B 43	E B 44	E B 41	G	E B 30	E B 44	B	J X 53	E B 37	E B 18	J X 41	J X 79
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	25	24	27	20	23	20	23	24	23	22	21	20	24	25	25	26	23	23	26	28	28	26	25
MED	J X 36	J X 36	J X 34	J X 41	U 34	U 33	U 30	U 32	E G 34	E G 33	E B 34	E B 35	E B 36	E B 35	E B 35	E B 33	E B 32	E B 29	E B 30	E G 26	E G 22	U G 24	24	J X 31
UQ	J X 41	J X 46	J X 44	J X 50	J X 42	42	38	38	39	U B 36	E B 36	E B 37	E B 38	E B 38	E B 42	E B 35	E B 34	E B 34	E B 36	U 30	U B 28	34	J X 37	J X 38
LQ	28	J X 32	J X 28	30	E G 24	U G 23		E G 27	E G 31	E G 28	E B 31	E G 31	E B 33		E B 32	E B 30	E B 30	E G 26		G	G	E B 19	E B 14	26

IONOSPHERIC DATA

FEB. 1961

f-min (0.1)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39° 35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	21	21	21	34	36	20	20	19	36	34	35	35	38	31	35	34	31	20	29	19	19	15	19	B
2	17	15	36	21	19	20	19	20	19	18	19	32	20	20	30	20	21	20	19	17	17	19	18	15
3	17	20	18	21	25	35	35	21	34	33	25	37	37	21	39	34	23	21	34	B	14	14	18	20
4	13	11	E	14	19	16	20	33	32	18	36	36	35	32	34	32	33	18	B	33	32	29	32	B
5	28	19	12	15	15	19	19	52	B	32	35	B	B	B	B	B	B	35	30	21	34	31	19	14
6	14	34	14	B	35	38	36	35	38	B	S	35	35	33	33	32	38	32	26	34	20	15	19	14
7	36	18	B	37	B	B	B	37	34	34	33	32	35	33	33	32	21	20	14	20	25	17	12	25
8	15	20	18	19	35	34	28	32	25	23	35	33	32	20	21	22	33	34	24	21	19	34	15	22
9	15	20	18	19	35	34	28	32	25	23	35	33	32	20	21	22	33	34	24	21	19	34	15	22
10	13	E	31	16	B	35	33	22	21	35	33	26	40	38	33	33	34	27	18	15	26	20	B	14
11	28	22	19	18	17	15	42	20	25	22	22	18	21	20	20	30	30	43	38	37	32	36	33	19
12	12	11	14	12	13	15	14	16	22	21	32	20	34	22	21	22	21	C	18	17	14	33	14	14
13	13	15	12	14	21	20	22	18	21	34	35	20	20	B	B	33	26	34	B	F	20	34	19	17
14	19	16	13	14	F	20	21	29	34	19	31	20	14	E C 32	19	C	30	22	27	22	20	21	15	19
15	C	C	32	22	34	30	23	21	33	22	35	35	37	20	18	34	43	38	38	25	20	21	15	19
16	19	16	16	12	19	38	B	34	33	35	36	B	B	33	B	43	34	B	22	15	16	15	14	15
17	12	13	15	28	B	35	B	18	17	28	30	35	35	24	32	22	B	32	18	31	15	17	36	36
18	15	15	39	22	B	B	B	B	42	34	B	B	B	B	42	42	31	B	33	26	19	22	22	20
19	31	19	38	32	B	B	24	37	22	22	44	32	B	42	48	31	33	B	32	22	21	17	14	15
20	15	15	13	19	35	21	34	B	B	42	B	42	B	B	43	38	41	B	B	38	22	16	13	26
21	15	47	B	26	36	B	B	B	B	B	33	B	B	58	44	48	28	29	B	21	21	21	B	13
22	E	14	14	15	42	B	B	B	33	29	38	B	37	36	47	S	37	26	32	20	20	18	E	15
23	18	22	B	39	B	32	23	28	34	B	C	C	C	37	34	35	32	36	42	33	21	26	14	12
24	15	B	20	22	22	42	38	25	B	B	B	B	39	37	39	35	31	33	19	22	20	14	14	E
25	12	12	12	14	12	18	19	36	34	28	37	39	38	35	42	37	34	32	37	34	34	28	20	17
26	19	18	34	19	B	38	41	22	32	23	34	36	34	34	28	32	28	27	23	20	15	16	13	13
27	17	15	14	13	18	16	B	22	40	19	24	21	21	35	34	31	21	27	19	29	19	14	14	14
28	15	14	17	20	33	21	B	B	42	33	35	38	43	44	41	25	30	44	B	46	37	25	E	12
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	27	27	28	28	27	28	28	28	28	28	26	27	27	28	28	26	28	27	28	27	28	28	28	28
MED	15	16	18	19	35	33	34	30	34	30	35	35	37	34	34	32	32	32	30	22	20	20	15	16
UQ	19	20	33	24	D B 42	38	B	37	39	34	36	40	42	40	42	35	34	37	38	33	24	28	20	21
LQ	14	14	14	14	19	20	22	21	25	22	32	32	33	22	29	30	28	26	20	20	19	16	14	14

IONOSPHERIC DATA

FEB. 1961

M(3000) F2(0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N, Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F 295	F	F 285	F	F 255	Z 265	245	F 245	F	F 255	260	260	F 265	290	290	295	295	F 305	305	335	F 310	F	B
2	A	F	F	F	F	J F 245	F	F	J F 275	F 265	250	260	280	280	275	285	295	295	310	315	320	335	330	295
3	290	260	265	255	F	F 245	J F 235	260	J F 270	F	F 270	265	260	255	250	Z 290	F 255	F 240	F	B	F	J R 285	U R 310	J F 290
4	F	F	F	F	F	F	F	R	F 220	F	F 255	F 255	F 260	F	F 265	F 260	F 275	255	B	R	A	A	A	B
5	A	F	F	R	R	F	F	B	B	R	R	B	B	B	B	B	B	F	F	F 290	295	F	F 305	F
6	F	F	F	F	F	F	F	F	F	F	F	F 240	F 240	F 275	F 285	F 280	275	F 280	250	245	F	F 330	F 330	A
7	A	A	F	R	R	F	A	R	B	B	S	245	R	355	F 240	F 260	R 275	F 265	F 290	Z 270	F	F	F 300	F
8	F	A	B	R	B	B	B	R	F 240	F	350	F 240	235	250	270	F 240	270	F 290	F 270	F 280	F 300	315	R	A
9	K	A	A	A	A	B	R	A	A	A	R	290	F 265	F 255	250	260	295	F 300	F 300	270	300	U R 300	F	F
10	F	F	A	F	B	A	A	U A 230	F 240	V 245	265	250	270	285	260	275	260	F 310	F 310	315	320	F 315	B	R
11	A	F	F	F	F	F	A	F	F	F	F 260	230	250	260	255	260	F 265	F 300	U F 260	310	F 315	F 290	F	F
12	R	R	F	F	F	F	F	F 245	F	F	F	F 285	280	280	290	310	300	C	315	315	F 325	R 315	F	F
13	F	F	F	F	F	F	F	J F 280	F 260	F 265	270	F 255	235	B	B	F	R	F 270	B	F	R	A	A	K
14	R	F	F	F	F	F	F	240	255	265	250	250	275	275	280	C	F 315	J F 300	315	300	310	310	F 290	R
15	C	C	A	A	R 255	J F 255	F 250	F 260	275	265	260	265	260	V 265	255	275	R	F 310	250	290	305	F 305	C	F
16	A	F	F	F	A	R	B	F	270	F 255	F 255	B	B	F 220	B	F 250	F 240	B	F 290	280	F	F 325	R	A
17	R	R	R	F	B	270	B	F 255	265	260	255	265	F 265	F 230	235	225	B	F	F	F	F	A	K	A
18	A	A	A	A	B	B	B	B	R	R	B	B	B	B	235	F	245	B	270	F 300	F	F	R	R
19	R	R	R	R	B	B	F	F 250	F	F 255	R 275	280	B	280	290	235	F 220	B	F 265	310	325	V 280	245	F
20	R	A	F	A	A	F	F	B	B	F 260	B	F 245	B	B	250	250	230	B	B	F	290	R	R	A
21	A	A	B	A	F 265	B	B	B	B	B	F 260	B	B	J R 295	260	285	265	245	B	285	290	R	B	A
22	A	F	F	F	280	B	B	B	245	J F 250	F 275	B	F 285	F 285	275	S	290	F 270	280	310	325	305	305	R
23	R	J F 295	B	A	B	F 255	F	F	F 240	B	C	C	C	F 285	295	300	F 285	F 310	F 315	315	F 330	F 305	F	A
24	A	B	F	F	F 275	R	270	260	B	B	B	B	F 270	F 290	295	300	320	315	F 320	300	320	F 335	F 310	F 310
25	J F 280	F	F	F	F	F	F	F	F	280	285	275	290	305	305	F 315	F 315	F 250	F 320	335	325	F 275	F	F
26	R	R	R	R	B	A	R	F	F 255	F	F 265	F	270	290	300	315	325	335	345	335	315	320	F	F
27	K	A	A	F	F	F	B	A	A	F	F	275	290	295	305	280	295	Z 280	300	325	300	J F 305	F	F
28	F	R	F	R	A	F	B	B	R	235	210	F 245	260	260	265	F 270	F	295	B	R	325	F	F	A
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	2	3	1	2	4	6	4	10	14	12	18	20	20	23	25	23	23	21	20	22	20	19	9	3
MED	285	F 295	265	270	270	F 255	258	252	F 255	260	260	258	265	280	270	275	275	295	F 300	302	318	310	F 305	F 295
UQ		F 295			278	F 255	268	F 260	270	265	270	270	278	288	290	290	295	300	F 315	315	325	318	F 310	302
LQ		278			260	F 245	F 242	245	F 240	F 252	255	F 245	260	260	255	260	262	270	F 270	285	300	302	F 300	292

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

FEB. 1961 | $h'F$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	290	290	310	330	A	300	280	220	220	220	210	210	210	205	210	200	210	225	220	230	A	270	B
2	A	A	360	390	310	A	210	240	210	H 205	H 205	205	205	U 210	210	205	H 200	210	240	220	230	220	225	240
3	270	300	295	340	300	B	E B 305	270	220	215	205	250	220	205	260	220	225	225	325	B	275	305	A	A
4	F	310	345	280	F	F	A	B	250	260	255	270	225	215	225	220	A	225	B	A	A	A	A	B
5	A	A	A 280	A	270	A	200	B	B	A	A	B	B	B	B	B	B	295	245	280	300	290	285	300
6	250	310	A	300	300	300	300	245	230	205	225	220	215	225	205	210	220	205	365	385	295	280	250	225
7	225	A	A	B	B	B	A	B	B	B	S	230	200	225	230	265	285	220	235	B	255	265	255	A
8	B	A	B	B	B	B	B	B	A	205	240	230	230	230	225	220	215	230	225	255	275	265	A	A
9	A	A	230	A	A	B	B	B	A	A	250	200	220	220	220	220	220	270	225	260	265	B	265	B
10	320	240	A	320	B	A	A	A	A	B	220	275	B	240	230	210	260	220	275	255	260	250	B	A
11	A	A	A	325	F	F	B	A	280	230	210	205	200	225	225	220	235	310	B	E B 300	260	B	300	300
12	A	A	A	A	R	A	F 245	F	235	215	225	215	210	205	260	220	230	C	215	225	250	250	230	230
13	280	300	360	335	B	265	230	280	205	245	230	200	215	B	B	265	R	295	B	F	R	A	A	A
14	A	A	A	A	F	A	A	240	E B 300	225	215	225	220	205	225	C	225	225	250	235	E A 300	250	A	A
15	C	C	B	A	A	R	R	E B 320	265	E B 295	B 260	235	245	220	225	245	B	B	B	225	260	250	265	270
16	A	265	295	345	A	A	B	B	280	265	265	B	B	260	B	B	295	B	275	R	225	245	R	R
17	A	A	A	B	B	B	B	330	255	225	220	265	240	245	240	300	B	250	275	315	F	A	B	B
18	A	A	A	A	B	B	B	B	B	A	B	B	B	B	B	B	260	B	B	290	275	F	R	A
19	B	A	B	B	B	B	E B 300	B	295	255	B	300	B	B	B	245	300	B	290	265	305	A	A	A
20	A	A	A 335	B	270	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	305	A	A	A
21	A	B	B	A	B	B	B	B	B	B	240	B	B	B	B	B	235	250	B	265	340	A	B	A
22	A	A	A	A	A	B	B	B	280	225	E B 280	B	235	275	B	S	E B 280	245	B	270	280	270	295	A
23	A	A	B	B	B	B	285	255	B	B	C	C	C	240	220	250	225	B	B	270	265	245	265	A
24	A	B	F	F	A	B	B	335	B	B	B	B	205	250	B	225	230	270	230	250	250	225	230	250
25	260	280	300	H 305	310	290	230	B	B	H 200	255	B 250	B 275	225	B	250	225	245	B	225	245	250	245	235
26	315	A	A	A	B	B	B	325	250	250	230	235	225	245	215	210	215	220	230	225	245	230	240	245
27	A	A	255	290	B	315	B	A	B	E B 350	H 320	H 295	H 200	250	230	205	245	235	230	240	235	250	225	265
28	320	A	315	A	B	A	B	B	B	B	245	B	B	B	B	235	230	B	B	290	300	275	280	A
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	8	12	11	7	4	10	11	15	18	21	19	19	21	17	21	22	20	17	22	25	18	16	10
MED	270	295	298	320	300	295	U 248	275	250	224	230	230	220	225	225	220	229	232	240	256	262	250	260	248
UQ	315	305	340	338	310	308	292	322	276	250	252	258	228	245	230	245	252	260	275	275	288	270	275	270
LQ	260	272	285	302	285	278	230	250	225	215	220	212	208	215	220	210	220	220	230	225	250	245	235	235

IONOSPHERIC DATA

FEB. 1961 | $h'Es$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	110	100	G	B	B	B	110	B	110	B	B	B	G	B	G	110	120	B	B
2	115	110	B	180	140	115	150	100	G	G	110	110	110	105	105	100	100	105	110	105	G	B	B	B
3	B	B	B	B	B	B	B	100	B	B	G	B	B	100	B	B	G	G	180	B	140	130	115	125
4	135	120	125	140	120	110	105	125	145	G	110	B	B	130	105	B	115	G	B	135	150	110	105	B
5	125	110	125	110	95	110	125	B	B	105	125	B	B	B	B	B	B	B	B	130	B	B	125	125
6	125	125	125	G	G	150	B	G	B	B	B	B	B	B	B	G	B	G	105	105	G	125	125	105
7	110	130	120	B	125	B	110	110	155	B	S	B	B	B	B	B	B	G	160	B	G	G	B	115
8	100	105	B	125	B	B	B	150	125	B	B	B	B	B	B	B	G	G	G	G	B	G	110	160
9	105	105	100	105	115	105	130	105	105	105	B	B	B	G	G	G	B	B	B	G	G	B	130	B
10	G	110	110	110	B	125	105	105	105	B	B	105	B	B	B	B	B	125	105	G	B	B	B	115
11	120	175	110	120	115	110	115	105	125	G	G	G	G	G	G	B	B	B	B	B	B	100	95	100
12	115	115	120	110	G	130	115	110	G	G	B	G	B	130	105	G	115	C	105	G	G	B	B	B
13	100	120	120	160	B	B	B	G	G	B	B	105	G	B	B	B	G	B	B	F	100	150	110	110
14	130	130	130	190	F	130	120	B	B	120	B	105	110	C	115	C	B	120	B	110	105	B	B	110
15	C	C	125	105	115	B	B	B	B	B	B	B	B	100	G	B	B	B	B	G	110	110	110	105
16	100	105	120	105	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	110	110	110	115	120
17	110	105	105	170	B	B	B	G	B	B	B	B	B	100	B	G	B	B	G	B	G	105	145	150
18	145	105	110	105	B	B	B	B	145	120	B	B	B	B	B	B	B	B	B	B	G	160	130	125
19	130	120	120	115	B	B	110	100	G	110	B	B	B	B	B	B	B	B	B	160	B	175	G	G
20	120	110	105	105	125	G	B	B	B	B	B	B	B	B	B	B	B	B	B	120	B	110	105	120
21	100	175	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	G	110	105	B	150
22	115	180	105	100	B	B	B	B	B	B	B	B	B	B	B	S	B	B	B	155	B	B	140	110
23	110	125	B	100	B	B	B	B	B	B	C	C	C	B	B	B	B	B	B	B	B	B	B	105
24	105	B	G	G	115	105	B	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
25	B	125	130	B	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100	100
26	B	120	110	105	B	105	105	110	B	G	B	B	B	B	G	B	B	B	B	B	G	B	B	B
27	155	110	125	105	105	130	B	105	115	115	G	105	G	B	B	B	G	B	G	B	B	110	B	155
28	140	130	130	120	105	110	B	B	105	110	B	B	B	B	B	G	B	B	B	120	B	B	135	110
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	22	24	21	22	12	15	12	12	9	7	3	6	2	7	4	1	3	3	6	10	8	14	16	20
MED	115	120	120	110	115	110	112	105	125	110	110	105	110	105	105	100	115	120	108	120	110	110	115	115
UQ	130	128	125	125	122	128	122	110	145	118	118	110		120	110		115	122	160	135	125	130	130	125
LQ	105	110	110	105	105	108	105	102	105	108	110	105		100	105		108	112	105	110	108	110	108	108

IONOSPHERIC DATA

MAR. 1961 | foF2 (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	R	R	R	R	F 42	U F 47	R	R	F	J F 52	F 53	56	57	F 59	61	60	59	55	54	48	J F 50	F	R
2	R	A	A	B	F	A	A	B	B	B	B	F	57	59	62	64	58	C	C	57	C	C	F	C
3	C	A	A	A	A	A	R	R	U F 54	F 58	57	56	56	60	61	59	60	53	51	48	F 50	B	B	F
4	B	R	R	R	38	F	F	58	64	72	75	79	C	79	80	78	80	73	68	63	F	F	F	F
5	F	F	F	F	A	F	F	F 59	F	F	F	U F 74	70	72	F 74	J F 66	F 66	F 62	56	55	J F 56	F	R	A
6	A	R	F 42	A	A	B	B	B	B	B	B	B	B	B	B	F	F	F	F 49	F 44	F 40	F 23	A	A
7	A	A	A	R	F	F	F	F 51	F 54	53	F 54	F 56	57	63	70	F	F	J F 62	F 55	F	F	F	U F 43	R
8	R	B	A	A	R	R	R	R	52	54	60	58	60	57	58	60	62	59	55	55	F 55	F	A	A
9	A	A	A	A	F	F	B	B	A	F 44	F	B	F	F	F 58	F 57	F 54	F 54	F 54	F 50	F	R	A	A
10	A	A	A	A	R	A	R	R	A	A	R	A	B	B	F	70	R	F 43	F	37	R	F 24	A	A
11	R	R	R	F 28	F	A	A	41	48	F 54	F 56	F 55	F 57	F 57	59	F 54	F 53	F 54	F	F	F	F	R	A
12	R	R	A	F	F	R	F	F	F	64	F 69	F 71	68	68	65	61	53	50	56	49	43	33	32	28
13	26	A	38	A	A	A	B	F 48	F	F 65	F 65	F 63	F 65	F 70	F	F 60	F 58	F 53	49	U F 49	F	21	S	A
14	A	A	A	A	A	A	B	B	A	F 53	B	B	47	48	B	F	F	F	F	R	F	A	A	A
15	A	A	A	A	A	F	A	B	B	B	F	F 54	F 58	F 56	F 68	68	U R 62	B	B	39	F 38	24	R	A
16	A	A	A	45	B	B	B	R	B	B	B	B	B	59	65	F 58	B	B	50	45	F	42	B	B
17	A	R	R	R	R	A	R	F	F 55	F 59	F 52	B	B	B	B	S	63	F 56	F 56	B	F 53	B	B	B
18	A	R	R 50	R	A	A	B	F 42	F 49	F 55	F 56	F 56	F 77	F	F	F	F 69	F 62	F 63	F 50	B	A	B	23
19	S	S	A	A	30	30	F	F 43	B	B	B	B	B	B	F 65	F	F 65	F	50	F 40	A	A	A	A
20	A	A	A	B	B	A	A	A	B	B	55	58	B	73	B	F	F	F	B	F	J F 44	R	A	A
21	A	R	A	A	B	R	B	B	F 43	F 52	F 57	F 58	F 62	F 69	79	75	68	73	76	F 75	F	R	A	A
22	A	R	A	R	24	B	47	R	F 55	B	U F 56	B	B	B	B	S	B	F 60	58	F 63	F 58	F	F	U F 27
23	B	B	B	B	27	27	R 44	B	B	B	58	B	F	F	F 82	J F 82	F 73	68	B	J F 68	A	C	B	B
24	S	A	22	R	A	A	R	F 49	F 56	F 60	F 72	F 78	80	77	U R 76	S	F	F 68	F 62	F 65	F 58	F	F	23
25	A	R	A	B	A	R	F	F 52	F 58	F 65	F 71	F 73	79	73	84	82	78	79	72	F	F 48	F	F 31	23
26	A	A	A	R 41	F	F	F	B	F	F	F	U F 77	F 88	F 83	F 83	F 75	F 72	F 70	F	F	F	F	F	F
27	F	A	A	R	U F 47	F	F	J F 54	F	F	F	83	F 84	R 86	J F 100	92	F	F	F	F	A	A	A	A
28	A	R	R	F 29	A	R	R	B	B	A	B	B	61	61	F 62	F 64	F 72	F	F 65	F	R	B	A	A
29	A	A	R	A	R	A	F 38	F 48	F 53	F 62	68	J F 76	F 78	80	F 85	R 76	F 92	S	B	B	B	B	B	C
30	A	R	R	F	B	A	A	A	B	J F 50	60	B	B	F	F	F	F	F 65	F	J F 47	F	F	F 28	25
31	S	22	22	F 22	F 24	F 22	F 28	42	55	61	78	83	87	87	90	S	76	S	F 60	F 58	F 53	U F 42	F 33	F

	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	5	5	6	4	5	12	13	17	19	19	20	22	22	20	21	20	20	21	13	8	5	6
MED	26	22	38	F 29	28	28	F 44	F 48	F 54	F 58	F 58	F 63	64	68	69	65	65	F 61	56	F 50	F 50	28	F 32	24
UQ			42	41	38	36	47	F 53	F 55	F 62	68	F 76	78	77	82	76	F 72	F 68	62	F 58	F 55	42	F 33	27
LQ			22	F 28	24	24	F 38	F 42	F 52	F 53	F 56	F 56	57	59	62	60	60	F 54	52	F 47	F 44	24	F 31	23

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAR. 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	R 400	400	L 430	R 420	L 420	L 440	L 420	L							
2								B	B	B	B	420	420	430	L 420	L 400	L	C						
3								B	A	380	400	R 410	L 430	L 430	L 410	L 400	L							
4													C	L	L	L 440	L	L						
5								B	L 370	L	L	400	420	L 420	L	L	L							
6							B	B	B	B	B	B	B	B	B	360	340	B						
7							320	L 340	L 350	L 400	390	L 410	410	L	L	L	L	L						
8									B	370	390	L 410	L	L	L 410	L 390	L						
9						F 240	B	B	B	B	B	B	H 410	400	L 390	L 400	L	L						
10								A	B	B	A	A	B	B		360	R							
11								A	A	A	370	380	380	400	390	L		L						
12							B		370	380	390	400	L 420	L 420	L 380	L	L							
13							B		380	L 380	380	380	400	400	L 390	L	L	L						
14							B	B			B	B	B	B	B	L	370							
15							A	B	B	B	R	390	380	L 410	B	B	B	B	B					
16							B	A	B	B	B	B	B	B			B	B						
17							B			L	390	B	B	B	B	S	L							
18							B		370				L	L	L	L	L							
19									B	B	B	B	B	B	B	L	L							
20									B	B	B	B	B	B	B			B						
21							B	B	B	380	380	L 400	410		L									
22								B	B	B	B	B	B	B	B	S	B	B	B					
23								B	B	B	B	B												
24							A						L	L	B	S								
25								L	L	L	L	L	L	L	L	L								
26								B	B	B			L	L	B									
27														B		L								
28								B	B	B	B	B	B											
29											L		L	L 410	L			S						
30									B	B	B	B	B	L	L		L							
31										L		L				S		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						1	1	1	5	7	9	11	11	10	8	8	2							
MED						F 240	320	L 340	370	380	390	400	410	415	L 400	L 400	355							
UQ									370	390	390	410	420	L 420	L 415	L 410								
LQ									370	380	380	395	405	400	L 390	375								

IONOSPHERIC DATA

MAR. 1961 | f_0E (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
2	190					B	B	B	B	B	B	B	B	B	B	B	A	C	C					
3						B	B	B	A	R	B	B	B	R	R	R	B	B	B	B	B			
4						B	B	R	R	R	B	B	C	R	R	260 230		R	B	A	A	B		
5						B	B	B	R	R	R	R	260	R	R	R	R	A	A	B	R 190			
6						B	B	B	B	B	B	B	B	B	B	B	R 290	B	R	R 220		170		
7	170	250			260	270	B	B	B	B	B	B	B	B	B	B	230	220	210	175				160
8						B	B	B	A	B	B	B	B	B	240	R	R	R	R	170	140	140		170
9						200	B	B	B	B	B	B	B	B	B	B	B	B	170	185	A			
10		190	170		170	B	B	B	B	B	B	B	B	B	R	B	A	160	A	150				
11				145		B	A	A	B	B	A	R	R	B	R	R	230	210	180	B				
12				220	R	B	B	R	225	240	R	R 275	R	275	B	B	B	B	A			140		
13						B	B	B	230	225	240	R	B	B	R	R	230	B	180	R	A			
14						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
15				170		A	B	B	B	B	B	R	R	B	B	B	B	B	B					
16						B	B	A	B	B	B	B	B	B	B	B	B	B	B					
17					220	B	B	B	B	B	B	B	B	B	B	S	B	B	B					
18						B	B	A	R	R	B	A	B	R	R	240	U R 225	170	B					
19							A	R	B	B	B	B	B	B	B	B	R	B	B					
20						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
21						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
22					170	B	B	B	B	B	B	B	B	B	B	S	B	B	B					
23						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
24						B	A	A	R	B	B	B	B	B	B	S	B	B	B					
25	220	290				B	R	B	B	B	275	B	R	R	R	R 270	B	U R 220	B					
26						A	235	B	B	B	B	B	B	B	B	B	B	B	B					
27						B	B	B	R	R	R	B	B	B	B	B	B	B	B					
28						A	A	B	B	B	B	B	B	B	B	B	B	B	B					
29						B	B	R	200	230	B	R	260	R	B	B	B	S	B					
30						B	B	B	B	B	B	B	B	B	B	B	B	B	R					
31			170		150	145	B	B	B	210	B	B	B	B	B	S	B	S	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	2	3	5	3	1		3	4	2	1	2	1	1	3	6	5	4	5	2	3		2
MED	190	250	170	170	170	200	235		225	228	258	275 R	260	275	240	260	230	210	180	175	165	140		165
UQ	205	270		195	220	235			228	235						265	230	220	195	185		155		
LQ	180	220		158	170	172			212	218						250	230	170	175	170		140		

IONOSPHERIC DATA

MAR. 1961 | foEs (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 41	J X 41	J X 42	38	J X 28	J X 28	J X 31	J X 43	J X 43	J X 37	J X 36	E B 33	E B 38	27	E B 33	J X 21	E B 32	E B 39	E B 42	E B 36	E B 26	E B 20	J X 41	J X 34
2	J X 26	J X 57	J X 59	B	J X 38	J X 51	J X 43	B	B	B	B	E B 37	E B 37	E B 34	E B 35	E B 31	24	C	E C 27	E C 33	E C 25	E C 18	E C 15	C
3	J X 28	J X 77	J X 77	J X 49	J X 69	J X 41	43	J X 42	37	G	E B 31	E B 35	E B 34	G	G	G	E B 27	E B 27	E B 23	E B 21	J X 26	B	E B 18	E B 14
4	B	J X 25	J X 28	J X 30	J X 21	E B 20	E B 20	G	G	G	E B 33	E B 34	C	G	J X 39	J X 33	36	G	24	E B 19	E B 18	E B 16	20	E
5	E B 14	E B 14	26	J X 41	J X 81	J X 34	38	E B 38	37	G	G	G	G	G	G	G	28	29	E B 22	G	E B 15	E B 15	28	J X 60
6	J X 84	45	J X 72	J X 118	J X 76	B	B	B	B	B	B	B	B	B	B	E B 28	G	E B 37	G	G	J X 57	J X 43	J X 24	J X 26
7	J X 27	J X 37	J X 33	28	J X 29	G	E B 25	E B 27	E B 27	E B 36	E B 33	E B 33	E B 34	E B 35	E B 32	E B 28	G	G	G	G	18	12	E	J X 29
8	J X 41	B	J X 43	J X 121	J X 44	J X 41	E B 35	J X 43	40	E B 32	E B 32	E B 32	E B 34	E B 33	G	G	G	G	G	G	G	J X 34	J X 62	J X 62
9	J X 51	J X 60	J X 76	J X 48	J X 38	G	B	B	49	E B 38	E B 38	B	E B 32	E B 35	E B 38	E B 36	E B 37	E B 30	G	G	27	J X 38	48	J X 64
10	J X 46	J X 62	J X 33	J X 38	J X 35	J X 46	39	28	J X 54	56	40	J X 43	B	B	G	36	27	J X 42	J X 34	29	28	22	23	J X 28
11	J X 37	J X 34	29	J X 23	23	30	36	33	36	35	30	37	G	E B 27	G	G	G	G	G	E B 18	E B 12	E B 15	J X 16	J X 75
12	37	J X 46	62	G	J X 23	39	39	G	G	G	G	G	G	22	E B 32	E B 30	E B 25	E B 22	23	E B 18	E B 17	G	E B 13	E B 13
13	J X 21	J X 28	J X 82	J X 47	J X 42	J X 39	B	J X 42	G	G	G	G	E B 32	E B 30	G	G	G	E B 19	G	G	J X 28	E	S	J X 29
14	42	J X 41	J X 62	J X 52	J X 107	J X 47	B	B	46	42	B	B	E B 42	E B 40	B	E B 34	E B 35	E B 32	E B 33	E B 23	33	J X 91	39	41
15	39	46	J X 49	J X 33	J X 132	J X 78	47	B	B	B	E B 33	G	G	E B 39	E B 45	E B 48	E B 51	B	B	E B 23	E B 21	16	18	J X 36
16	J X 76	J X 66	J X 46	J X 36	B	B	B	J X 36	B	B	B	B	B	E B 49	E B 43	E B 35	B	B	E B 33	E B 29	E B 24	E B 25	B	B
17	J X 42	28	J X 29	27	G	J X 52	J X 42	J X 37	E B 37	E B 32	E B 28	B	B	B	B	S	E B 48	E B 42	E B 38	B	E B 42	B	B	B
18	J X 50	J X 31	J X 31	28	J X 56	44	B	28	G	G	32	J X 36	30	G	G	G	G	G	E B 33	26	B	J X 65	B	G
19	S	S	J X 67	33	E B 22	E B 23	E B 20	G	B	B	B	B	B	B	E B 46	E B 32	G	E B 37	E B 41	29	J X 78	J X 78	J X 42	J X 89
20	J X 51	J X 44	J X 46	B	B	J X 46	J X 44	45	B	B	E B 43	E B 47	B	E B 62	B	E B 38	E B 38	E B 58	B	E B 35	J X 62	22	J X 40	J X 46
21	39	26	J X 67	49	B	26	B	B	E B 37	E B 33	E B 37	E B 33	E B 33	E B 38	E B 34	E B 31	E B 34	E B 24	E B 21	E B 28	E B 19	17	38	J X 39
22	30	26	31	27	G	B	E B 39	E B 34	E B 42	B	E B 38	B	B	B	B	S	B	E B 43	E B 47	E B 33	E B 33	E B 23	E B 21	E B 15
23	B	B	B	24	32	28	J X 38	B	B	B	E B 44	B	E B 44	E B 43	E B 44	E B 38	E B 33	E B 42	B	J X 73	J X 63	C	B	B
24	S	24	28	28	J X 56	46	J X 40	24	G	E B 38	E B 35	E B 34	E B 34	E B 33	E B 66	S	E B 42	E B 37	E B 31	E B 18	E B 21	E B 15	E B 17	E B 16
25	J X 30	G	37	40	45	38	G	E B 23	E B 26	E B 27	G	E B 31	G	G	G	G	E B 30	G	22	E B 18	E B 13	J X 26	E	E B 13
26	25	31	J X 54	J X 46	J X 40	J X 37	32	B	E B 41	E B 43	E B 37	E B 37	E B 32	E B 34	E B 72	E B 42	E B 32	E B 32	E B 20	E B 18	E B 18	E B 14	E B 18	E B 13
27	E B 15	J X 62	J X 38	J X 36	J X 41	33	E B 32	E B 27	G	G	G	E B 34	E B 32	E B 58	E B 36	E B 30	E B 33	E B 28	E B 32	J X 65	J X 86	50	50	J X 38
28	J X 52	J X 37	22	18	J X 51	J X 31	J X 23	B	B	51	B	B	E B 45	E B 34	E B 28	E B 28	E B 24	E B 23	E B 20	E B 16	28	B	32	32
29	33	32	24	32	41	J X 42	38	J X 61	G	G	E B 38	G	G	G	E B 28	E B 38	E B 27	S	B	B	B	B	B	C
30	36	J X 32	30	J X 63	B	J X 51	J X 47	J X 47	B	E B 39	E B 40	B	B	E B 32	E B 32	E B 27	E B 23	E B 34	G	E B 20	E B 23	E B 13	E B 15	E B 13
31	S	J X 32	G	20	G	G	E B 16	E B 17	E B 20	G	E B 27	E B 32	E B 32	E B 32	E B 31	S	E B 26	S	E B 17	E B 28	E B 20	E B 13	E B 14	J X 30
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	28	30	29	27	28	24	22	22	23	25	21	22	26	26	27	29	26	27	29	29	26	25	26
MED	J X 38	J X 36	J X 40	J X 36	J X 40	J X 38	38	U 31	E G 36	E G 32	E B 33	E B 33	E B 32	E B 33	E B 32	E B 30	E B 27	E B 30	E B 23	E B 21	E B 25	U G 16	21	J X 30
UQ	J X 46	J X 46	J X 62	J X 47	J X 54	J X 46	41	J X 42	U 39	E B 38	E B 38	E B 36	E B 34	E B 38	E B 39	E B 36	E B 34	E B 37	E B 33	E B 29	U 30	J X 34	39	J X 41
LQ	28	28	29	28	J X 26	28		E G 24	G	G	E G 28	E B 31	G	E G 22	G	E G 21	E G 23	E G 19	E G 17	E B 18	E B 18	E B 15	E B 16	E B 14

IONOSPHERIC DATA

MAR. 1961

f-min (0.1)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39° 35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	18	24	21	24	23	19	15	37	35	35	22	33	38	23	33	18	32	39	42	36	26	20	12	12
2	E	15	21	B	22	35	35	B	B	B	B	37	37	34	35	31	21	C	E C 27	E C 33	E C 25	E C 18	E C 15	C
3	E C 15	25	20	20	35	32	35	37	22	21	31	35	34	26	22	20	27	27	23	21	17	B	18	14
4	B	15	15	15	17	20	20	19	20	21	33	34	C	29	19	22	20	18	19	19	18	16	15	E
5	14	14	14	17	18	18	32	38	21	19	21	19	21	21	27	21	21	19	22	18	15	15	13	22
6	35	35	21	21	20	B	B	B	B	B	B	B	B	B	B	28	27	37	21	18	17	12	13	13
7	13	18	14	15	14	18	25	27	27	36	33	33	34	35	32	28	16	13	19	16	12	E	E	E
8	14	B	17	20	35	38	35	35	23	32	32	32	34	33	20	22	19	20	17	15	12	E	12	13
9	19	12	17	18	18	16	B	B	34	38	38	B	32	35	38	36	37	30	15	14	14	19	16	20
10	19	13	E	E	13	19	24	21	38	37	24	23	B	B	23	18	18	15	14	14	E	E	E	12
11	12	13	12	E	E	24	19	18	23	27	18	20	24	27	23	18	17	17	15	18	12	15	E	13
12	14	36	25	E	E	37	28	16	16	17	18	16	17	20	32	30	25	22	18	18	17	E	13	13
13	E	E	15	18	22	19	B	19	18	17	20	21	32	30	21	20	21	19	16	13	12	E	S	12
14	12	15	E	E	22	35	B	B	42	35	B	B	42	40	B	34	35	32	33	23	14	18	15	20
15	18	21	15	13	18	15	22	B	B	B	33	18	22	39	45	48	51	B	B	23	21	13	13	14
16	14	35	31	22	B	B	B	14	B	B	B	B	B	49	43	35	B	B	33	29	24	25	B	B
17	16	15	E	17	19	18	37	23	37	32	28	B	B	B	B	S	48	42	38	B	42	B	B	B
18	19	15	15	13	21	26	B	17	20	18	28	22	26	22	21	21	21	15	33	17	B	27	B	15
19	S	S	35	18	22	23	20	17	B	B	B	B	B	B	46	32	22	37	41	14	14	36	15	24
20	35	22	37	B	B	33	33	38	B	B	43	47	B	62	B	38	38	58	B	35	15	14	13	20
21	20	18	40	22	B	23	B	B	37	33	37	33	33	38	34	31	34	24	21	28	19	15	E	20
22	13	14	14	17	16	B	39	34	42	B	38	B	B	B	B	S	B	43	47	33	33	23	21	15
23	B	B	B	20	17	19	20	B	B	B	44	B	44	43	44	38	32	42	B	28	19	C	B	B
24	S	18	15	17	34	31	21	20	19	38	35	34	34	33	66	S	42	37	31	18	21	15	17	16
25	15	24	27	37	20	28	20	23	26	27	24	31	23	22	21	20	30	21	21	18	13	E	E	13
26	18	13	19	17	19	16	19	B	41	43	37	37	32	34	72	42	32	32	20	18	18	14	18	13
27	15	16	35	34	18	20	32	27	24	30	20	34	32	58	36	30	33	28	32	16	14	16	14	16
28	E	13	E	E	13	13	13	B	B	44	B	B	45	34	28	28	24	23	20	16	16	B	12	13
29	14	16	23	22	37	22	18	17	18	21	38	23	21	22	28	38	27	S	B	B	B	B	B	C
30	20	25	18	28	B	18	37	37	B	39	40	B	B	32	32	27	23	34	17	20	23	13	15	13
31	S	13	12	E	13	E	16	17	20	18	27	32	32	32	31	S	26	S	17	25	20	13	14	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	28	30	31	31	31	31	31	31	31	31	31	31	30	31	31	27	31	28	31	31	31	30	30	29
MED	15	16	17	18	20	22	32	34	35	35	33	34	34	34	33	28	27	29	22	18	17	15	14	14
UQ	19	24	24	22	28	32	38	B	B	D B 44	42	B	B	46	46	34	34	38	36	27	22	23	18	20
LQ	14	14	14	14	17	18	20	19	22	24	26	27	32	28	25	21	21	20	18	16	14	13	12	13

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IONOSPHERIC DATA

MAR. 1961

M(3000) F2(0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

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

	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	5	5	6	4	5	12	12	17	19	19	20	22	22	20	21	20	20	21	13	8	5	6
MED	275	275	275	F 285	258	258	F 270	F 272	F 278	F 270	F 270	F 285	280	285	298	302	315	F 318	325	F 320	F 315	305	F 300	298
UQ			305	295	F 265	F 268	F 270	F 288	F 292	F 275	F 282	F 290	F 292	295	310	310	325	325	F 335	330	F 330	F 320	305	F 305
LQ			275	F 260	F 250	245	250	F 255	F 260	F 265	F 265	F 272	270	280	290	292	305	F 308	310	305	F 300	F 260	F 290	295

IONOSPHERIC DATA

MAR. 1961 | $h'F$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	B	R	A	B	A	A	B	E B 265	H 220	245	235	225	240	240	270	295	250	250	250	235	A
2	R	A	A	B	A	A	B	B	B	B	B	E B 285	265	230	245	225	235	C	250	C 240	225	225	250	C
3	C	A	A	A	B	B	B	B	A	250	235	260	225	H 225	245	210	215	230	240	250	245	B	B	265
4	B	A	A	A	375	340	270	250	225	220	240	230	C	220	E B 265	220	220	215	225	215	215	225	225	245
5	260	300	325	300	A	400	375	B	350	245	215	H 205	H 200	225	240	235	220	245	230	230	225	245	A	A
6	E	B	360	A	375	B	B	B	B	B	B	B	B	B	B	240	350	B	285	265	300	365	A	A
7	A	A	A	A	F	400	340	295	255	E B 300	E B 250	275	250	280	225	225	215	210	H 200	250	240	225	E B 250	A
8	A	B	A	A	B	B	B	B	B	E B 295	270	250	E B 240	225	220	225	225	235	235	240	250	300	A	A
9	A	A	A	A	330	240	B	B	B	B	B	B	E B 250	E B 280	B	275	235	275	280	280	310	A	A	A
10	A	A	A	B	B	B	B	B	B	B	A	A	B	B	F 275	B	R	300	345	310	A	410	A	A
11	A	A	A	275	275	B	A	A	A	A	250	240	225	225	H 225	230	240	215	240	245	235	250	A	A
12	A	B	B	F	240	B	B	345	H 220	225	H 205	230	215	220	240	230	225	240	240	225	225	220	245	275
13	310	A	235	A	A	A	B	A	H 235	200	H 200	225	250	230	225	230	230	230	260	250	305	300	S	A
14	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	360	B	270	275	R	A	A	A	A
15	A	A	A	A	A	400	A	B	B	B	295	220	210	B	B	B	B	B	B	265	245	290	A	A
16	A	B	A	410	B	B	B	A	B	B	B	B	B	B	300	E B 300	B	B	265	275	275	295	B	B
17	A	A	A	A	R	A	B	375	305	255	220	B	B	B	B	S	295	275	265	B	325	B	B	B
18	A	A	A	A	A	A	B	370	265	275	E B 230	255	230	235	215	225	225	220	240	305	B	A	B	E B 320
19	S	S	B	A	410	B	330	E B 275	B	B	B	B	B	B	B	E B 250	250	310	335	E B 300	A	B	A	A
20	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	295	245	B	B	235	275	A	A	A
21	A	A	B	A	B	B	B	B	B	E B 295	B	240	E B 260	290	250	230	230	230	235	230	235	300	A	A
22	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	S	B	B	B	230	255	250	270	295
23	B	B	B	B	470	470	F	B	B	B	B	B	280	280	275	235	250	255	B	245	A	C	B	B
24	S	A	A	A	A	A	A	325	275	315	270	265	250	250	B	S	250	245	230	220	220	240	310	295
25	A	300	A	B	A	A	305	280	265	240	255	225	250	225	235	230	225	225	220	215	210	245	225	290
26	A	A	A	270	320	375	360	B	B	B	275	270	235	250	B	250	235	230	225	225	245	225	230	230
27	275	A	B	B	365	425	375	310	290	300	260	250	230	B	250	240	230	240	235	A	A	A	A	A
28	A	A	350	280	A	A	A	B	B	B	B	B	B	260	235	235	270	270	225	250	A	B	A	A
29	A	A	B	A	B	A	A	295	260	235	280	235	225	230	245	245	220	S	B	B	B	B	B	C
30	A	A	A	320	B	A	B	B	B	B	B	B	B	255	245	240	240	250	230	235	275	230	265	275
31	S	370	380	E A 385	380	370	330	275	250	225	235	B 230	230	230	240	S	225	S	215	245	230	220	300	300
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	3	5	7	10	9	8	11	12	15	18	19	20	21	21	25	26	23	26	27	23	20	11	10
MED	275	300	350	290	370	400	335	295	262	242	244	238	234	230	240	232	232	240	240	245	245	248	250	278
UQ	292	335	360	U 331	380	400	368	335	282	U 274	270	255	250	252	248	242	245	270	265	254	275	298	268	295
LQ	268	300	325	278	320	370	318	278	242	230	222	228	225	225	225	230	225	230	230	230	228	225	230	265

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IONOSPHERIC DATA

MAR. 1961 | $h'Es$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	100	100	130	125	105	100	125	100	140	110	B	B	105	B	100	B	B	B	B	B	B	B	105
2	110	120	130	B	115	130	125	B	B	B	B	B	B	B	B	B	100	C	C	C	C	C	C	C
3	130	115	100	105	100	125	125	115	105	G	B	B	B	G	G	G	B	B	B	B	100	B	B	B
4	B	120	115	115	130	B	B	G	G	G	B	B	C	G	115	115	110	G	160	B	B	B	100	E
5	B	B	130	115	110	115	130	B	145	G	G	G	G	G	G	G	100	100	B	G	B	B	125	150
6	110	120	130	100	105	B	B	B	B	B	B	B	B	B	B	B	G	B	G	G	120	170	130	125
7	145	140	125	135	145	G	B	B	B	B	B	B	B	B	B	B	G	G	G	G	150	125	E	140
8	110	B	105	110	115	115	125	130	120	B	B	B	B	B	G	G	G	G	G	G	G	150	110	120
9	115	150	120	110	105	G	B	B	105	B	B	B	B	B	B	B	B	B	G	G	140	125	110	105
10	110	110	140	105	110	125	120	100	145	125	110	110	B	B	G	105	105	110	115	175	100	125	135	125
11	115	120	135	120	125	125	125	110	125	125	100	110	G	B	G	G	G	G	G	B	B	B	160	105
12	120	150	150	G	100	150	110	G	G	G	G	G	G	105	B	B	B	B	100	B	B	G	B	B
13	110	100	110	110	115	110	B	110	G	G	G	G	B	B	G	G	G	B	G	G	135	E	S	115
14	115	105	120	125	100	125	B	B	110	110	B	B	B	B	B	B	B	B	B	B	110	110	110	105
15	125	105	110	130	125	110	110	B	B	B	B	G	G	B	B	B	B	B	B	B	B	125	125	105
16	110	100	110	125	B	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	110	115	110	130	G	125	110	110	B	B	B	B	B	B	B	S	B	B	B	B	B	B	B	B
18	120	120	110	115	105	110	B	100	G	G	120	115	120	G	G	G	G	G	B	120	B	150	B	G
19	S	S	100	115	B	B	B	G	B	B	B	B	B	B	B	B	G	B	B	140	110	130	115	100
20	100	180	100	B	B	100	110	120	B	B	B	B	B	B	B	B	B	B	B	B	120	120	115	115
21	115	110	190	100	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	175	110	125
22	110	110	105	120	G	B	B	B	B	B	B	B	B	B	B	S	B	B	B	B	B	B	B	B
23	B	B	B	150	130	115	120	B	B	B	B	B	B	B	B	B	B	B	B	135	135	C	B	B
24	S	150	135	120	130	120	105	130	G	B	B	B	B	B	B	S	B	B	B	B	B	B	B	B
25	160	G	115	115	105	110	G	B	B	B	G	B	G	G	G	G	B	G	105	B	B	100	E	B
26	125	125	175	120	120	120	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	B	130	125	120	115	115	B	B	G	G	G	B	B	B	B	B	B	B	B	110	115	115	100	115
28	110	115	125	145	130	120	120	B	B	105	B	B	B	B	B	B	B	B	B	B	155	B	120	110
29	110	125	130	125	150	120	125	125	G	G	B	G	G	G	B	B	B	S	B	B	B	B	B	C
30	110	130	145	100	B	100	110	120	B	B	B	B	B	B	B	B	B	B	G	B	B	B	B	B
31	S	130	G	125	G	G	B	B	B	G	B	B	B	B	B	S	B	S	B	B	B	B	B	160
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	29	28	23	23	17	13	8	5	4	3	1	2	1	3	4	2	4	5	12	13	14	17
MED	110	120	120	120	115	120	120	120	115	125	110	110	120	105	115	105	102	105	110	135	120	125	115	115
UQ	120	130	130	125	128	125	125	125	135	125	115	112				110	108		138	140	138	150	125	125
LQ	110	110	110	110	105	110	110	110	105	110	105	110				102	100		102	120	110	120	110	105

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IONOSPHERIC DATA

APR. 1961 | foF2 (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	A	A	A	B	B	F 60	F 61	F	F	F	J F 75	F	F	F	F	F	U F 53	U F 43	A	A	A
2	A	A	A	F	A	F	F	F	B	B	B	B	F 58	B	64	B	F	F	F	F	F	A	A	A
3	A	A	F	A	F	A	B	A	B	B	A	B	B	B	F 53	F	F	F 44	U F 37	A	A	A	A	A
4	A	A	A	A	B	A	A	A	A	47	B	B	47	47	48	50	48	F 43	F 43	37	F	F	U R 18	R
5	R	R	U R 27	A	A	A	A	A	B	F	53	53	F 63	F 63	73	68	63	59	F	U F 45	B	B	B	B
6	B	B	A	A	A	A	A	A	F 48	F 53	F 54	57	62	63	V 65	F 63	F 68	F 58	F 48	U F 39	F 25	A	A	A
7	A	A	A	A	F	F	A	A	B	F	F	F 58	F 61	V 63	V 64	S	F 64	F 55	U F 52	U F 43	U F 38	F 28	20	A
8	A	A	A	A	A	A	F 42	F 48	B	F	F	F 53	R 57	F 63	F 59	63	60	F 56	F 53	U F 41	B	B	B	B
9	B	A	A	A	A	A	A	J F 48	F	F	F	F	F 70	F 57	B	B	R	R	F 48	B	F	A	A	A
10	A	A	F	A	A	A	A	A	B	B	B	R 58	B	R	B	R	U F 77	F 70	B	F	B	A	B	R
11	A	A	A	A	A	A	A	F	B	B	F	B	R 57	Z 42	V 68	R 62	F 58	B	J F 61	A	A	B	R	R
12	A	A	A	A	A	A	A	A	F	U F 47	B	63	F 74	F 68	F 65	F 66	F 67	F 56	B	F	B	B	B	A
13	A	R	A	F	A	43	B	F	F	F	J F 56	F 58	F 64	F 65	67	61	53	F	U F 51	A	A	A	R 28	22
14	R 38	R	F	F	F	R	A	F	F	F	U F 55	F 62	65	R	B	J R 72	R	R	A	R	F	A	R	A
15	A	B	B	B	A	B	A	B	B	B	B	B	B	B	B	J R 45	B	F	F	A	R	A	A	A
16	A	A	A	F	A	A	A	A	A	45	52	V 57	F 61	J R 56	J R 52	R 59	58	R 56	B	F 40	R	B	A	A
17	A	B	B	A	B	A	F 32	A	F	F 48	F 52	57	F 63	F 68	F 63	F 62	R 53	F 50	R 42	R	R	R	F 18	R 17
18	A	A	A	R	A	A	A	R 27	F	F	R 55	F 60	F 70	J F 76	F 85	F 74	F	F	F	F	F	S	B	B
19	R	R	F 25	A	A	A	A	F	F	S	F 61	U F 67	J R 75	F	F 95	F 82	F 62	F 63	R	R	J R 28	R	R	A
20	R	A	A	A	A	A	A	F 44	F	F	F 56	F 59	U F 66	F	F 77	F 64	F	F	F	U F 37	R	F 23	F 23	R
21	F	F 24	F 24	26	A	F	F	F	F	S	J F 74	F	F 87	R	F 93	S	F	F	F 44	F	B	R	B	B
22	A	R	F 25	F	F	F	F 28	F	F	F 56	F 67	F 84	F	J F 96	R	F	F 87	S	F 82	R	A	A	A	A
23	A	A	A	F	S	A	R	R	B	J R 40	F	F	R	F	F	F	F	F	F	F	A	A	A	A
24	R	A	R	A	B	A	R	B	38	44	F 48	52	F 54	57	65	66	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	C	C	C	C	C	C	C	C	48	50	40	B	B	R	A
27	R	A	A	F 28	A	A	A	A	F	F 47	F	F 60	R 73	R 87	U R 90	82	82	R	R 58	B	B	R	R	A
28	A	A	B	R	B	A	A	A	A	A	F 42	F 50	52	55	62	R 61	F 58	F 48	R	B	B	B	B	B
29	R	R	R	B	R	A	R	R	F	45	53	67	76	S	83	68	U R 58	50	F 38	F 34	F 26	20	15	16
30	S	A	B	B	A	A	A	A	A	S	V 54	62	F 68	76	R 84	F 78	J F 78	B	J R 78	R	B	B	R	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	4	2		1	3	4	3	11	15	19	22	18	21	19	17	14	15	10	5	3	6	3
MED	R 38	F 24	F 25	27		43	F 32	F 46	F 48	F 47	F 54	F 58	F 64	63	65	64	F 62	F 56	F 50	U F 40	F 28	F 23	19	17
UQ			26				F 37	F 48	F 54	F 50	F 56	F 62	F 70	F 75	83	70	F 68	F 58	F 56	U F 43	U F 38	F 26	23	20
LQ			F 24				F 30	36	43	45	52	57	F 58	57	63	62	58	F 48	F 44	F 37	F 26	22	18	16

IONOSPHERIC DATA

APR. 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	B	B	L	L 400	B	L	B									
2							B	B	B	B	B	B		B	B	B								
3								B	B	B	B	B	B	B	B									
4									A		B	B	B	L	L	B								
5								B	B	B	L	L	L	L	L		L	B						
6								A	A				L	L	L	L								
7									B				L	L	B	S								
8								B	B			B	B	L	B									
9								A	A	B	L	L	L	L 380	B	B		B						
10								B	B	B	B	B	B	B	B	B								
11									B	B	B	B	B	B	B	B		B						
12								A	L		B	B		B										
13								B	L	B			L	L	L	L								
14												U L 360	L	B	B	B	B							
15								B	B	B	B	B	B	B	B	B	B	B						
16												B	L	B	B	B	B	B						
17												L												
18											B	L												
19																								
20														L										
21										S						S								
22																								
23									B	B														
24																	C	C						
25								C	C	C	C	C	C	C	C	C	C	C						
26								C	C	C	C	C	C	C	C	C	C							
27								A	A															
28										B														
29																								
30								A	A	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												2		1										
MED												L 380		L 380										
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

APR. 1961 | foE (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	B	B	B	B	B	B	B	B	B	B	B	B						
2							B	B	B	B	B	B	B	B	B	B	B	B						
3								B	B	B	B	B	B	B	B	B	B	B						
4								A	A	R	B	B	B	B	B	B	B	B						
5								B	B	B	B	B	B	B	B	B	B	B						
6								B	A	R	B	R	265	260	B	A	B	R						
7								A	B	B	R 230	R 230	B	B	B	S	B	B						
8								B	B	B	B	B	B	B	B	B	B	B						
9				130				A	A	B	R	B	235	B	B	B	B	B						
10								B	B	B	B	B	B	B	B	B	B	B						
11								B	B	B	B	B	B	B	B	B	B	B						
12								A	220	B	B	B	B	B	B	B	B	B						
13		220						B	B	B	B	245	200	230	R	B	170	R						
14								220	R	R	S	220	A	B	B	B	B	B						
15								B	B	B	B	B	B	B	B	B	B	B						
16								B	B	B	245	B	B	B	B	B	B	B						
17							200	A	220	B	B	B	B	B	B	B	B	B						
18								B	B	B	B	B	B	B	B	B	B	B						
19								285	285	S	A	R	225	B	B	B	B	B						
20								B	B	B	B	B	B	B	B	B	B	B						
21								B	145	S	B	B	B	B	B	S	B	B						
22								B	B	175	R	R 220	B	B	B	B	175	B						
23							130	A	B	B	B	A	B	B	B	B	B	B						
24								B	B	B	B	R	B	B	B	B	C	C						
25								C	C	C	C	C	C	C	C	C	C	C						
26								C	C	C	C	C	C	C	C	C	C	R						
27								A	A	B	R	R 220	B	B	B	B								
28								B	B	B	B	B	B	B	B	B	B	B						
29								A	A	A	B	B	B	S	B	B	A	A						
30								B	A	S	A	225	A	A	R	B	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		1		1			2	2	4	1	2	6	4	2			2							
MED		220		130			165	252	220	175	238	222	230	245			172							
UQ									252			230	250											
LQ									182			R 220	212											

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

APR. 1961 | foEs (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 22	J X 14	J X 25	J X 37	J X 36	J X 46	B	B	E B 37	E B 28	E B 34	E B 32	E B 38	E B 34	E B 36	E B 37	E B 36	E B 34	E B 34	E B 22	J X 36	37	36	37
2	J X 116	37	J X 40	J X 40	J X 26	23	J X 32	J X 61	B	B	B	B	E B 32	B	E B 50	B	E B 43	E B 22	E B 17	J X 36	J X 30	37	42	41
3	J X 56	46	J X 40	46	36	J X 52	B	J X 69	B	B	47	B	B	B	E B 41	E B 33	28	E B 20	23	J X 43	J X 31	J X 65	J X 39	J X 32
4	47	47	J X 76	J X 78	B	J X 44	47	J X 41	28	G	B	B	E B 38	E B 33	E B 32	E B 29	E B 29	E B 26	E B 30	E B 26	E B 18	E B 13	E B 13	E B 13
5	17	18	J X 28	27	J X 33	J X 64	J X 79	J X 77	B	E B 35	E B 28	E B 30	E B 27	E B 28	E B 27	E B 32	E B 38	E B 37	E B 22	E B 17	B	B	B	B
6	B	B	J X 31	J X 40	J X 46	J X 76	52	J X 52	27	G	E B 30	G	G	E B 28	E B 24	21	E B 22	G	E B 27	E B 17	E B 13	J X 53	40	J X 50
7	54	64	J X 81	J X 46	J X 36	J X 41	J X 52	J X 40	B	E B 24	G	G	E B 33	E B 26	E B 28	S	E B 34	E B 33	E B 22	E B 23	E B 21	E B 13	E B 12	J X 27
8	J X 27	J X 27	J X 33	27	J X 33	36	37	J X 37	B	E B 34	E B 28	E B 37	E B 49	E B 37	E B 33	E B 34	E B 22	E B 22	E B 28	E B 23	B	B	B	B
9	B	J X 46	J X 32	32	J X 33	60	49	J X 57	48	E B 34	G	E B 24	G	E B 26	B	B	E B 36	E B 48	E B 36	B	E B 34	28	45	40
10	44	J X 52	J X 65	J X 121	55	J X 51	J X 53	41	B	B	B	E B 48	B	E B 46	B	E B 60	E B 43	E B 37	B	E B 33	B	38	B	22
11	42	J X 50	J X 58	J X 48	J X 36	J X 52	43	E B 30	B	B	E B 38	B	E B 43	E B 43	E B 39	E B 48	E B 23	B	E B 31	36	J X 110	B	27	25
12	29	28	J X 46	J X 63	62	43	42	J X 37	G	E B 21	B	E B 39	E B 38	E B 38	E B 32	E B 34	E B 38	E B 32	B	E B 19	B	71	B	22
13	J X 37	J X 27	J X 33	30	J X 49	42	B	J X 41	J X 37	E B 32	E B 22	G	G	G	G	J X 81	G	G	35	J X 31	J X 34	33	26	27
14	J X 44	J X 38	J X 81	J X 72	J X 81	J F 42	46	J X 36	G	G	E S 32	G	24	E B 43	B	E B 46	E B 59	E B 32	J X 84	26	J X 88	J X 52	41	47
15	52	J X 44	B	B	J X 76	B	J X 35	B	B	B	B	B	B	B	B	E B 46	B	E B 32	E B 23	32	32	J X 36	J X 38	J X 91
16	J X 50	J X 43	J X 26	J X 96	J X 67	J X 47	46	J X 44	45	E B 31	G	E B 36	E B 34	E B 43	E B 44	E B 42	E B 45	E B 43	B	E B 18	21	B	33	38
17	J X 95	B	B	41	B	J X 39	G	33	G	E B 24	E B 24	E B 32	E B 22	E B 35	E B 32	E B 32	E B 34	E B 32	E B 32	E B 32	E B 22	E B 18	E B 13	E B 13
18	22	J X 27	J X 31	27	40	J X 31	J X 36	24	22	E B 32	E B 39	E B 23	E B 26	E B 38	E B 23	E B 21	E B 18	E B 38	E B 27	E B 23	E B 14	S	B	B
19	25	28	J X 40	34	42	47	48	G	G	S	22	G	G	E B 42	E B 22	E B 28	E B 17	E B 15	E B 18	E B 18	E	23	27	33
20	J X 28	32	J X 31	J X 56	J X 53	J X 45	52	J X 53	E B 32	E B 34	E B 26	E B 27	E B 32	E B 22	E B 22	E B 23	E B 19	E B 18	E B 22	E B 22	E B 19	E B 13	E B 13	J F 22
21	22	24	22	J X 40	J X 27	33	E B 17	E B 16	G	S	E B 23	E B 23	E B 23	E B 23	E B 23	S	E S 17	E B 18	E B 17	E B 22	B	E B 15	B	B
22	33	24	23	18	15	17	E B 14	J X 76	E B 18	G	G	G	E B 38	E B 26	23	E B 20	G	E B 17	22	J X 40	J X 41	J X 41	57	J X 75
23	J X 50	J X 42	32	24	J X 38	38	35	17	B	E B 34	J X 40	J X 28	E B 33	E B 32	E B 34	E B 32	E B 32	E B 28	E B 16	E B 20	J X 30	30	J X 35	J X 62
24	M 27	J X 47	M 29	33	J X 60	J X 66	35	B	J X 36	E B 20	E B 25	G	E B 32	E B 33	E B 30	E B 32	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	C	C	C	C	C	C	C	C	G	E B 12	E B 27	B	B	23	J X 41
27	22	30	M 27	27	J X 35	46	J X 43	J X 54	M 43	27	G	G	E B 41	E B 42	E B 32	E B 32	E B 31	E B 42	E B 42	B	B	42	42	40
28	39	J X 60	B	J X 58	B	J X 79	J X 50	J X 46	J X 52	E B 39	M 40	E B 28	E B 24	E B 24	E B 22	E B 24	E B 18	E B 19	E B 18	B	B	B	B	B
29	M 23	46	J X 34	B	M 28	J X 33	M 28	M 24	E B 16	E B 17	E B 25	E B 23	E B 32	S	E B 25	E B 18	E B 13	E B 13	E B 15	E B 14	E	E	E	E B 12
30	B	J X 68	J X 40	B	J X 62	43	56	E B 18	J X 48	S	M 26	G	23	E B 21	G	E B 28	E B 22	B	E B 28	M 32	B	B	J X 26	J X 31
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	25	25	25	27	25	25	19	20	23	23	25	24	24	24	26	26	25	25	19	20	21	23
MED	37	J X 40	J X 33	J X 40	J X 38	J X 44	43	J X 41	U 25	E B 28	E B 26	E B 23	E B 32	E B 33	E B 29	E B 32	E B 28	E B 27	E B 23	E B 23	U 26	34	33	33
UQ	J X 50	J X 47	J X 40	J X 56	J X 55	J X 52	50	J X 53	40	E B 34	E B 33	E B 31	E B 38	E B 40	E B 34	E B 40	E B 36	E B 34	E B 31	32	J X 34	42	40	41
LQ	25	27	J X 29	30	J X 33	38	35	30	E G 16			G	E B 23	E B 26	E B 23	E B 26	E B 18	E B 18	E B 18	E B 20	E B 18	E E 16	23	24

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IONOSPHERIC DATA

APR. 1961 | f-min (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	13	16	13	31	B	B	37	28	34	32	38	34	36	37	36	34	34	22	15	15	14	19
2	20	20	20	15	18	18	21	19	B	B	B	B	32	B	50	B	43	22	17	20	15	E	13	24
3	15	21	17	27	17	38	B	59	B	B	41	B	B	B	41	33	22	20	14	19	18	14	14	18
4	39	18	32	14	B	35	23	18	17	19	B	B	38	33	32	29	29	26	30	26	18	13	13	13
5	13	13	12	12	16	23	36	35	B	35	28	30	27	28	27	32	38	37	22	17	B	B	B	B
6	B	B	13	20	16	19	23	18	19	19	30	20	21	28	24	17	22	17	27	17	13	14	18	16
7	43	46	19	22	19	21	19	16	B	24	21	21	33	26	38	S	34	33	22	23	21	13	12	E
8	12	E	E	E	14	13	13	17	B	34	28	37	49	37	33	34	22	22	28	23	B	B	B	B
9	B	13	12	12	14	17	23	18	18	34	18	24	17	26	B	B	36	48	36	B	34	13	17	14
10	13	12	E	35	38	20	18	32	B	B	B	48	B	46	B	60	43	37	B	33	B	16	B	13
11	E	32	18	38	25	16	31	30	B	B	38	B	43	43	39	48	23	B	31	17	19	B	17	15
12	15	16	27	42	34	24	21	15	18	21	B	39	38	38	32	34	38	32	B	19	B	62	B	E
13	13	12	13	18	18	18	B	18	18	32	22	20	17	18	17	21	13	12	29	13	16	12	13	18
14	18	21	12	18	17	17	17	14	15	16	E S 32	16	18	43	B	46	59	32	22	20	18	21	37	32
15	19	37	B	B	32	B	28	B	B	B	B	B	B	B	B	46	B	32	23	13	18	13	13	16
16	17	12	12	13	15	12	21	24	20	31	23	36	34	43	44	42	45	43	B	18	E	B	13	14
17	38	B	B	37	B	19	18	17	19	24	24	32	22	35	32	34	32	32	32	32	22	18	13	13
18	E	12	E	E	19	15	13	18	19	32	39	23	26	38	23	21	18	38	27	23	14	S	B	B
19	18	16	12	14	17	18	22	26	20	S	20	22	22	42	22	28	17	15	18	18	E	E	12	12
20	13	13	E	37	19	32	21	18	32	34	26	27	32	22	22	23	19	18	22	22	19	13	13	14
21	15	13	17	17	19	18	17	16	12	S	23	23	23	23	23	S	17	18	17	22	B	15	B	B
22	15	16	13	E	E	12	14	19	18	16	18	18	38	26	21	20	17	17	15	17	13	14	14	E
23	15	18	14	20	14	18	12	14	B	34	25	21	33	32	34	32	32	28	16	20	18	14	19	17
24	20	31	18	21	33	24	22	B	22	20	25	21	32	33	30	32	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	C	C	C	C	C	C	C	C	12	12	27	B	B	E	E
27	E	17	16	E	14	18	17	14	14	23	20	16	41	42	32	32	31	42	42	B	B	B	B	B
28	E	13	B	38	B	29	42	35	38	39	32	28	24	24	22	24	18	19	18	B	B	B	B	B
29	18	20	21	B	22	15	15	14	16	17	25	23	32	S	25	18	13	13	15	14	E	E	E	12
30	B	15	34	B	32	21	20	18	14	S	20	18	18	21	26	28	22	B	28	26	B	B	12	12
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	25	28	28	28	27	28	26	27	28	28	28	28	27	28	28
MED	15	16	15	19	18	18	21	18	20	32	26	26	32	34	32	32	29	30	25	21	18	15	14	16
UQ	20	21	20	37	32	24	26	31	B	35	38	38	38	42	40	42	37	37	32	26	B	B	B	28
LQ	13	13	12	14	16	17	17	16	18	21	22	21	22	26	24	24	18	18	18	18	15	13	13	12

IONOSPHERIC DATA

APR. 1961

M(3000) F2(0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	A	A	A	B	B	F 250	F 260	F	F	F	J F 225	F	F	F	F	F	U F 300	U F 235	A	A	A
2	A	A	A	F	R	F	F	F	B	B	B	B	F 285	B	270	B	F	F	F	F	F	A	A	A
3	A	A	F	A	F	A	B	A	B	B	A	B	B	B	F 280	F	F	F 280	U F 295	A	A	A	A	A
4	A	A	A	A	B	A	A	A	A	285	B	B	300	300	315	315	335	F 330	F 325	325	F	F	U R 315	R
5	R	R	U R 360	A	A	A	A	A	B	F	305	280	F 295	F 350	315	315	335	340	F	U F 310	B	B	B	B
6	B	B	A	A	A	A	A	A	F 290	F 295	F 295	300	305	315	V 310	F 320	F 330	F 335	F 340	U F 315	F 320	A	A	A
7	A	A	A	A	F	F	A	A	B	F	F	F 295	F 285	V 285	V 300	S	F 320	F 325	U F 325	U F 325	U F 310	F 305	285	A
8	A	A	A	A	A	A	F 255	F 270	B	F	F	F 290	R 310	F 315	F 305	315	325	F 330	F 335	U F 320	B	B	B	B
9	B	A	A	A	A	A	A	J F 270	F	F	F	F	F 300	F 245	B	B	R	R	F 290	B	F	A	A	A
10	A	A	F	A	A	A	A	A	B	B	B	R 310	B	R	B	R	U F 310	F 325	B	F	B	A	B	R
11	A	A	A	A	A	A	A	F	B	B	F	B	R 335	Z 335	V 305	R 305	F 305	B	J F 295	A	A	B	R	R
12	A	A	A	A	A	A	A	A	F	U F 285	B	290	F 310	F 310	F 335	F 320	F 355	F 330	B	F	B	B	B	A
13	A	R	A	F	A	265	B	F	F	F	J F 320	F 305	F 265	F 310	330	345	340	F	U F 310	A	A	A	R 270	285
14	R 365	R	F	F	F	R	A	F	F	F	U F 265	F 260	280	R	B	J R 250	R	R	A	R	F	A	R	A
15	A	B	B	B	A	B	A	B	B	B	B	B	B	B	B	J R 280	B	F	F	A	R	A	A	A
16	A	A	A	F	A	A	A	A	A	290	310	V 300	F 295	J R 340	J R 335	R 335	285	R 325	B	F 295	R	B	A	A
17	A	B	B	A	B	A	F 240	A	F	F 315	F 325	300	F 335	F 325	F 350	F 340	R 335	F 335	R 335	R	R	R	F 320	R 305
18	A	A	A	R	A	A	A	R 275	F	F	R 285	F 315	F 325	J F 305	F 330	F 340	F	F	F	F	F	S	B	B
19	R	R	F 280	A	A	A	A	F	F	S	F 305	U F 315	J R 325	F	F 325	F 340	F 340	F 340	R	R	J R 290	R	R	A
20	R	A	A	A	A	A	A	F 255	F	F	F 310	U F 310	U F 310	F	F 320	F 330	F	F	F	U F 350	R	F 335	F 310	R
21	F	F 305	F 260	270	A	F	F	F	F	S	J F 325	F	F 320	R	F 330	S	F	F	F 340	F	B	R	B	B
22	A	R	F 280	F	F	F	F 275	F	F	F 330	F 330	F 315	F	J F 325	R	F	F 320	S	F 305	R	A	A	A	A
23	A	A	A	F	S	A	R	R	B	J R 280	F	F	R	F	F	F	F	F	F	F	A	A	A	A
24	R	A	R	A	B	A	R	B	245	290	F 290	320	F 295	310	325	320	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	C	C	C	C	C	C	C	C	335	315	325	B	B	R	A
27	R	A	A	F 320	A	A	A	A	F	F 285	F	F 315	R 310	R 320	U R 340	355	320	R	R 365	B	B	R	R	A
28	A	A	B	R	B	A	A	A	A	A	F 305	F 325	325	325	335	R 335	F 330	F 315	R	B	B	B	B	B
29	R	R	R	B	R	A	R	R	F	310	340	305	340	S	360	365	U R 345	360	F 340	F 345	F 340	350	365	325
30	S	A	B	B	A	A	A	A	A	S	V 335	325	F 330	320	R 320	F 360	J F 360	B	J R 220	R	B	B	R	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	4	2		1	3	4	3	11	15	19	22	18	21	19	17	14	15	10	5	3	6	3
MED	R 365	F 305	F 280	295		265	F 255	F 270	F 250	F 290	F 310	F 305	F 310	315	325	330	F 330	F 330	F 325	U F 322	F 310	F 335	312	305
UQ			320				F 265	272	F 270	302	F 325	F 315	F 325	325	335	340	340	F 335	F 338	F 325	F 320	342	320	315
LQ			F 270				F 248	F 262	248	285	F 300	298	F 295	F 305	310	315	F 320	F 325	F 300	U F 310	U F 290	F 320	285	295

IONOSPHERIC DATA

APR. 1961 | $h'F$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	340	330	A	A	A	B	B	B	B	E B 305	E B 285	B	E B 305	B	250	270	250	270	270	460	A	A	A
2	A	A	A	325	A	F	B	B	B	B	B	B	E B 260	B	B	B	250	250	250	325	A	A	A	A
3	A	A	320	A	A	B	B	B	B	B	B	B	B	B	B	325	275	E B 290	300	A	A	A	A	A
4	B	A	A	A	B	A	A	230	A	275	B	B	B	E B 270	E B 270	B	260	240	260	270	260	240	300	E B 330
5	A	A	230	A	A	B	B	B	B	B	270	225	245	240	240	230	240	B	225	240	B	B	B	B
6	B	B	A	A	A	A	A	A	320	275	265	240	235	250	240	230	235	220	235	240	265	A	A	A
7	B	B	A	A	A	B	A	A	B	280	225	250	270	235	B	S	245	260	240	260	260	260	280	A
8	A	A	A	A	A	A	390	B	B	320	275	B	B	290	B	255	230	225	235	240	B	B	B	B
9	B	A	A	A	A	A	A	A	A	B	225	220	225	230	B	B	250	B	325	B	280	A	A	A
10	A	A	F	B	B	A	A	B	B	B	B	B	B	B	B	B	245	265	B	280	B	A	B	A
11	A	B	A	B	B	A	B	320	B	B	B	B	B	B	B	B	265	B	320	A	A	B	A	A
12	A	A	B	B	B	A	A	A	305	230	B	B	275	B	240	230	230	B 240	B	280	B	B	B	A
13	A	A	A	400	A	A	B	B	305	B	225	230	230	225	225	230	225	225	275	A	A	A	370	B
14	265	R	F	F	F	A	A	320	300	240	E S 300	240	230	B	B	B	B	B	R	A	A	A	B	B
15	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	305	A	A	A	A	A
16	A	A	A	A	A	A	A	A	A	280	255	B	275	B	B	B	B	B	B	280	A	B	A	A
17	A	B	B	B	B	A	F	A	280	265	240	E B 270	245	250	230	225	230	250	265	300	240	240	270	325
18	A	A	A	A	A	A	A	A 365	280	270	B	225	235	265	230	225	220	230	240	230	250	S	B	B
19	A	A	320	A	A	A	A	F	300	S	230	245	225	235	225	215	205	205	210	220	260	A	A	A
20	A	A	A	B	A	B	A	A	300	275	250	245	250	225	235	230	225	220	230	235	230	250	250	A
21	270	325	B	A	A	F	330	310	260	S	225	220	225	220	220	S	200	205	205	210	B	B	B	B
22	A	A	A 330	325	C	330	325	300	250	225	230	225	220	225	225	215	220	210	250	300	A	A	A	375
23	B	A	A	F	270	A	A	R	B	B	250	250	270	230	225	225	220	215	225	265	A	A	A	A
24	A	B	A	A	B	A	A	B	A	270	250	260	280	265	235	230	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	C	C	C	C	C	C	C	C	225	225	280	B	B	A	A
27	A	A	A	300	A	A	A	A	F	300	305	265	275	230	210	210	250	275	225	B	B	A	A	A
28	A	A	B	B	B	A	B	B	B	B	225	260	260	260	235	225	210	220	235	B	B	B	B	B
29	A	A	A	B	A	A	A	335	265	240	225	250	225	S	225	200	195	200	210	205	220	230	275	300
30	B	A	B	B	A	A	A	A	A	S	265	250	235	235	235	225	215	B	250	A	B	B	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	3	2	5	4	1	1	3	7	11	14	20	19	21	19	17	18	24	21	24	19	10	5	6	4
MED	270	332	320	325	270	330	330	320	300	272	242	242	240	235	230	228	230	225	240	265	260	240	278	320
UQ	285		330	362			360	328	302	280	264	252	270	256	235	230	250	250	268	280	265	250	300	352
LQ	268		320	312			328	305	272	240	225	228	230	230	225	225	220	220	225	238	240	240	270	312

IONOSPHERIC DATA

APR. 1961 | $h'Es$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	170	140	125	120	125	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	120	120	125
2	150	120	120	170	135	125	135	120	B	B	B	B	B	B	B	B	B	B	B	130	130	120	110	120
3	100	110	120	110	120	135	B	160	B	B	130	B	B	B	B	B	150	B	150	120	115	120	110	130
4	105	105	160	100	B	100	100	120	120	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	135	135	120	120	115	125	110	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
6	B	B	135	120	115	110	110	110	120	G	B	G	G	B	B	100	B	G	B	B	B	120	125	110
7	120	120	120	115	120	125	135	110	B	B	G	G	B	B	B	S	B	B	B	B	B	B	B	170
8	170	150	120	125	125	120	120	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
9	B	120	120	120	130	120	100	110	110	B	G	B	G	B	B	B	B	B	B	B	B	120	120	120
10	110	110	125	130	130	100	105	125	B	B	B	B	B	B	B	B	B	B	B	B	B	110	B	115
11	160	135	120	120	115	160	120	B	B	B	B	B	B	B	B	B	B	B	B	110	120	B	115	110
12	115	120	125	110	120	125	145	120	G	B	B	B	B	B	B	B	B	B	B	B	B	115	B	120
13	115	110	110	130	110	105	B	100	110	B	B	G	G	G	G	150	G	G	130	125	125	120	125	160
14	120	135	120	110	100	115	115	130	G	G	S	B	105	B	B	B	B	B	110	105	115	110	120	120
15	100	100	B	B	125	B	130	B	B	B	B	B	B	B	B	B	B	B	B	120	125	120	120	100
16	125	125	125	125	115	130	100	100	100	B	G	B	B	B	B	B	B	B	B	B	120	B	110	105
17	100	B	B	120	B	120	G	115	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
18	120	110	110	110	110	115	110	125	150	B	B	B	B	B	B	B	B	B	B	B	B	S	B	B
19	160	120	125	120	120	115	100	G	G	S	120	G	G	B	B	B	B	B	B	B	E	105	105	115
20	120	120	130	110	100	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150
21	150	140	130	180	135	125	B	B	G	S	B	B	B	B	B	S	B	B	B	B	B	B	B	B
22	120	135	125	135	125	115	B	100	B	G	G	G	B	B	165	B	G	B	130	120	120	120	105	135
23	130	120	120	130	135	125	130	145	B	B	125	125	B	B	B	B	B	B	B	B	170	120	125	115
24	120	100	120	125	110	125	120	B	105	B	B	G	B	B	B	B	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	C	C	C	C	C	C	C	C	G	B	B	B	B	115	105
27	110	115	120	120	110	105	100	105	105	110	G	G	B	B	B	B	B	B	B	B	B	105	105	105
28	105	100	B	100	B	105	105	100	100	120	120	B	B	B	B	B	B	B	B	B	B	B	B	B
29	165	110	120	B	120	110	105	105	B	B	B	B	B	S	B	B	B	B	B	B	E	E	E	B
30	B	105	125	B	110	110	100	95	100	S	120	G	110	B	G	B	B	B	B	120	B	B	120	105
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	25	25	25	27	22	22	10	2	5	1	2		1	2	1		4	8	10	14	16	20
MED	120	120	120	120	120	120	110	112	108	115	120	125	108		165	125	150		130	120	122	120	118	118
UQ	150	135	125	125	125	125	120	120	120		125								140	122	125	120	120	128
LQ	110	110	120	110	110	110	100	100	100		120								120	115	120	110	110	108

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAY 1961 | foF2 (0.1) | 45° E Mean Time (G.M.T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39° 35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	S	A	S	U R 42	A	R	B	A	A	B	F	48	53	57	B	F 63	U R 70	B	F	B	B	F 27	R	B
2	R	A	A	A	A	A	A	B	A	F 54	F	F 47	F 51	B	J R 50	J R 44	R 38	J R 37	B	B	B	B	R	A
3	R	A	R	A	A	A	A	B	F 33	J F 47	F	R 67	64	R	R	R	R	R	R	A	R	B	B	B
4	B	R	R	R	R	R	J R 16	U R 23	R 23	R	U R 52	R	R 72	R	R	R	F	F 45	B	B	B	B	A	A
5	A	A	A	A	A	A	A	A	F	R	R	B	B	F	J F 77	F	F	R	B	R	A	A	A	A
6	A	A	A	B	A	A	A	A	A	B	B	B	J R 37	B	B	F	R	R	B	A	A	R	R	A
7	A	A	A	A	A	B	A	A	B	B	B	B	B	R	B	B	B	B	R	B	B	B	B	R
8	R	A	A	A	A	A	A	A	A	B	B	B	F 57	B	B	J F 48	J R 39	R 48	R	R	B	A	R	R
9	A	A	A	A	B	R 34	A	B	A	B	B	B	B	B	B	B	B	B	F 43	B	B	B	B	R
10	R	A	A	B	A	A	R	B	R 23	U R 33	R	R 56	F 55	R	R 63	R 59	B	B	B	B	B	B	B	B
11	A	R	F	A	A	B	B	C	A	B	B	B	B	B	C	F	F	F	J F 39	27	B	A	A	R
12	A	A	A	A	A	B	B	A	B	B	B	B	R	B	B	B	B	F	F 32	24	B	B	R	R
13	R	R	A	B	B	B	A	B	B	F	J F 40	F 46	40	J R 51	R	B	R	R	R	A	B	R	R	R
14	A	R	R	R	A	A	B	B	B	F 33	F	B	66	76	V 73	R	48	F	F	B	B	B	B	B
15	B	B	B	B	B	A	B	B	B	B	F 47	U F 57	F	F	65	R	B	B	B	B	B	B	B	A
16	A	A	A	A	R	A	B	A	A	B	B	J R 40	B	B	R	J R 50	F 45	45	R	A	R	R	A	A
17	A	A	A	A	A	A	A	A	18	28	R 47	54	F	R 81	F	67	U F 58	R	C	B	B	B	B	R
18	R	A	A	A	A	A	F 37	J F 34	F	R	47	57	74	69	R	F	F	U F 31	F	B	B	B	B	B
19	B	B	B	B	A	F	F	F	F	B	42	F	F	F	F	F	F	F 38	F	F 23	F	A	A	A
20	A	A	A	A	A	F	A	A	A	B	F	B	B	B	50	U F 52	U F 47	F 43	J R 30	R	A	R	A	A
21	A	A	A	R	R	B	A	F	F	B	B	F	57	F	F 68	J F 56	B	B	A	R	B	B	A	A
22	A	A	A	A	A	A	A	40	F	F	J F 47	F 62	R	F	R	R	F	R	F	R	B	R	R	F
23	A	A	A	A	A	F	F	F	A	F	F 51	64	F	R	J R 76	R 61	F 72	F 61	J F 41	B	B	B	R	A
24	A	A	A	A	A	B	B	B	B	A	B	B	U F 62	F 68	R 71	F 48	F 47	F 47	B	B	B	B	B	B
25	B	R	A	A	A	A	A	A	R	B	B	B	B	B	B	B	F 53	F 43	U F 47	R	A	A	A	R
26	A	A	A	A	B	B	B	A	R	F 24	34	J R 42	B	59	F 61	F 58	B	B	B	B	B	B	B	B
27	J R 23	R	F	A	A	A	A	R	F	F	B	B	R	F 67	F	58	F	F	F 24	R	B	B	R	R
28	R	A	R	A	A	A	A	A	J R 31	R 29	F	F 50	F	F 72	F	F	F	B	B	R	A	A	A	A
29	A	A	A	A	A	A	F 40	J F 40	B	F	F 46	F	F	F	F 47	F 47	F 35	F 21	B	B	B	B	B	B
30	R	R	R	F	F	A	A	F	F	F	F	U R 41	R	F	F	F	F 43	F	F	B	R	R	R	R 33
31	Z 40	F	F	R 52	R	F 51	F	F	B	F 40	F	B	S	B	B	B	B	F 39	F 27	B	R	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	2			2		2	3	4	5	8	10	14	12	9	11	13	12	12	8	3		1		1
MED	32			R 47		42	F 37	37	R 23	F 33	47	52	57	68	65	F 56	F 47	F 43	F 36	24		F 27		R 33
UQ							F 38	40	R 31	F 44	47	57	65	72	72	59	F 56	F 46	F 42	26				
LQ							26	28	R 23	28	F 42	46	52	59	56	J F 48	F 41	F 38	F 28	24				

IONOSPHERIC DATA

MAY 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39° 35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										B	B				B	B								
2														B	B									
3																								
4																								
5												B	B											
6										B	B	B	B	B	B	B								
7										B	B	B	B	B	B	B								
8										B	B	B		B	B	B								
9										B	B	B	B	B	B	B								
10																								
11										B	B	B	B	B	C	C								
12										B	B	B	B	B	B	B								
13										B			B	B		B								
14										B		B				B								
15										B		B		B	B	B								
16										B	B	B	B	B	B									
17																								
18																								
19										B														
20										B		B	B	B										
21										B	B	B		B										
22																								
23																								
24											B	B												
25										B	B	B	B	B	B	B								
26													B	B										
27											B	B	B											
28																								
29																								
30													B											
31												B	S	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																								
MED																								
UQ																								
LQ																								

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IONOSPHERIC DATA

MAY 1961 | foE (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										B	B	B	B	B	B	B								
2										B	220	B	B	B	B	B								
3										B	175	A	B	B	B	B								
4										A	B	B	B	B	B	A								
5										A	200	B	B	B	B	B								
6										B	B	B	B	B	B	B								
7										B	B	B	B	B	B	B								
8										B	B	B	B	B	B	B								
9										B	B	B	B	B	B	B								
10										B	B	B	B	B	B	B								
11										B	B	B	B	B	C	B								
12										B	B	B	B	B	B	B								
13										B	B	B	B	B	B	B								
14										B	B	B	B	B	B	B								
15										B	B	B	B	B	B	B								
16										B	B	B	B	B	B	B								
17										B	195	200	B	B	B	C								
18	150								115	155	B	B	B	B	B	B								
19										B	B	B	B	B	B	B		140		150				
20										B	B	B	B	B	B	B								
21										B	B	B	B	B	B	B								
22										B	195	B	B	B	A	E								
23										B	B	B	B	B	B	B								
24										B	B	B	B	B	B	B								
25										B	B	B	B	B	B	B								
26										B	B	B	B	B	B	B								
27										B	B	B	B	B	B	B								
28										B	B	B	A	B	B	B								
29										B	B	B	B	B	B	B								
30										140	145	B	B	B	B	B								
31										B	B	B	S	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	1								1	2	6	1				1		1		1				
MED	150								115	148	195	200				E		140		150				
UQ											200													
LQ											175													

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAY 1961 | foEs (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 84	49	49	J X 78	J X 55	26	B	60	M 46	B	E B 34	E B 20	E B 22	E B 22	B	E B 37	E B 33	B	20	B	B	27	23	B
2	33	J X 62	J X 45	J X 50	J X 40	J X 47	J X 63	B	M 43	J X 43	G	E B 24	E B 36	B	E B 43	E B 38	E B 30	E B 37	B	B	B	B	M 22	J X 30
3	28	31	28	28	43	39	33	39	J X 40	J X 31	G	J X 20	E B 25	E B 37	E B 34	E B 27	E B 24	E B 18	E B 20	M 29	M 22	B	B	B
4	J X 72	J X 28	20	18	M 24	M 22	J X 26	E B 13	E	E B 14	E B 19	E B 20	E B 20	E B 22	E B 19	M 22	E B 24	E B 31	B	B	B	B	J X 34	J X 62
5	55	J X 33	J X 52	J X 66	J X 28	J X 52	J X 41	J X 39	M 43	31	G	B	B	E B 29	E B 31	E B 23	E B 32	E B 20	B	23	J X 79	J X 43	46	J X 48
6	J X 36	J X 43	J X 121	M 42	J X 61	J X 51	J X 66	50	J X 51	B	B	B	E B 36	B	B	E B 32	E B 37	E B 42	B	J X 44	J X 42	J X 25	29	38
7	J X 72	J X 39	J X 40	J X 42	48	B	J X 41	J X 52	B	B	B	B	B	E B 43	B	B	B	B	E B 43	B	B	B	B	26
8	30	J X 64	J X 71	J X 57	J X 46	J X 37	46	61	J X 50	B	B	B	E B 37	B	B	E B 42	E B 31	E B 17	E B 19	E B 15	B	J X 36	24	M 25
9	42	J X 38	38	J X 27	B	M 22	J X 51	B	M 43	B	B	B	B	B	B	B	B	B	E B 24	B	B	B	B	M 27
10	24	32	J X 39	B	J X 39	J X 36	J X 22	B	E B 14	M 26	E B 32	E B 36	E B 27	E B 33	E B 42	E B 37	B	B	B	B	B	B	B	B
11	J X 40	24	J X 79	J X 52	J X 51	B	B	C	J X 41	B	B	B	B	B	C	E B 33	E B 16	E B 33	E B 15	E B 20	B	J X 39	J X 45	M 23
12	35	37	42	J X 40	J X 40	B	M 48	54	B	B	B	B	E B 46	B	B	B	B	E B 20	E B 14	E B 18	B	B	M 32	31
13	31	37	J X 77	B	B	B	J X 56	B	B	M 46	27	E B 23	E B 24	E B 44	E B 39	B	E B 42	E B 40	E B 38	J X 42	B	22	17	J X 22
14	J X 36	21	M 22	22	43	42	B	B	B	J X 36	E B 24	B	E B 43	E B 38	E B 36	E B 62	E B 41	E B 20	E B 18	B	B	B	B	B
15	B	B	B	B	J X 42	J X 39	B	B	B	B	E B 33	E B 38	E B 33	E B 43	E B 46	E B 43	B	B	B	B	B	B	B	33
16	42	42	J X 42	J X 40	J X 35	J X 40	B	J X 45	47	J X 78	B	E B 33	B	B	E B 43	E B 36	E B 30	E B 17	40	51	M 34	M 24	M 44	30
17	J X 52	J X 85	J X 53	J X 79	J X 53	J X 61	J X 47	J X 42	J X 26	E B 18	G	G	E B 32	E B 24	E B 33	E C 18	E B 20	E B 34	C	B	B	B	B	M 21
18	G	28	J X 31	J X 66	J X 49	J X 41	J X 35	19	G	G	E B 16	E B 17	E B 20	E B 22	E B 19	E B 14	M 28	J X 27	E B 14	B	B	B	B	B
19	B	B	B	B	J X 37	J X 41	J X 30	25	J X 39	B	E B 32	E B 22	E B 22	E B 20	E B 17	J X 29	J X 21	G	E B 14	G	19	28	J X 35	J X 42
20	J X 71	J X 87	J X 71	J X 62	J X 61	J X 35	47	J X 41	M 40	B	E B 34	B	B	B	E B 34	E B 37	E B 28	E B 34	E B 26	E B 14	37	27	37	J X 42
21	42	J X 52	J X 42	J X 42	J X 36	B	J X 53	51	J X 39	B	B	E B 40	E B 36	E B 42	E B 25	E B 19	B	B	J X 48	M 29	B	B	J X 47	J X 49
22	49	J X 42	J X 36	J X 54	J X 53	J X 56	J X 52	J X 41	M 21	E B 15	G	21	22	23	J X 16	J X 16	J X 36	28	E B 19	E B 18	B	E B 30	J X 38	J X 38
23	J X 46	J X 46	J X 50	J X 41	J X 43	J X 38	J X 25	E B 17	J X 42	31	E B 22	E B 31	E B 22	J X 35	E B 17	E B 16	E B 19	E B 22	E B 17	B	B	B	24	37
24	34	J X 37	33	32	J X 76	B	B	B	B	M 42	B	B	E B 37	E B 26	E B 29	E B 24	E B 28	E B 27	B	B	B	B	B	B
25	B	J X 37	J X 46	52	52	M 48	J X 56	J X 41	J X 36	B	B	B	B	B	B	B	E B 21	J X 38	J X 40	42	38	J X 51	J X 42	35
26	J X 38	J X 38	28	J X 41	B	B	B	J X 41	M 22	E B 15	E B 21	E B 42	B	E B 44	E B 27	E B 23	B	B	B	B	B	B	B	B
27	34	M 38	J X 22	J X 81	J X 51	J X 56	J X 42	J X 39	J X 39	32	B	B	E B 44	E B 41	E B 18	E B 14	E B 14	J X 41	E B 18	E B 19	B	B	J X 29	J X 36
28	32	J X 43	38	J X 46	J X 39	J X 41	J X 62	J X 61	J X 43	J X 38	E B 18	E B 32	M 24	E B 19	M 24	E B 22	E B 33	B	B	M 27	J X 30	J X 46	J X 41	J X 43
29	42	J X 51	J X 40	J X 38	J X 36	37	M 27	F 33	B	E B 32	E B 32	E B 34	E B 27	E B 21	E B 21	E B 20	E B 15	E B 15	B	B	B	B	B	B
30	J X 36	J X 27	J X 28	J X 26	J X 47	J X 46	J X 43	J X 35	J X 25	G	G	E B 30	E B 42	E B 32	E B 30	E B 18	E B 30	E B 18	E B 12	B	17	E B 30	23	21
31	J X 34	J X 48	J X 31	J X 54	J X 46	J X 58	J X 36	J X 52	B	E B 32	E B 28	B	S	B	B	B	B	E B 28	E B 17	B	M 26	J X 49	J X 46	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	27	28	24	24	23	23	19	20	18	22	21	22	25	23	23	20	15	10	14	20	23
MED	37	J X 38	J X 40	J X 42	J X 44	J X 41	J X 44	J X 41	J X 40	31	E B 22	E B 27	E B 30	E B 32	E B 30	E B 24	E B 28	E B 27	E B 19	23	32	30	34	35
UQ	J X 48	J X 48	J X 50	J X 56	J X 52	J X 50	J X 52	J X 52	43	37	E B 32	E B 34	E B 37	E B 41	E B 36	E B 37	E B 32	E B 34	E B 32	36	38	J X 43	J X 43	J X 42
LQ	34	33	J X 31	J X 39	J X 39	J X 37	J X 34	37	26	E G 16	G	E B 20	E B 22	E B 22	E B 19	E B 19	E B 21	E B 19	E B 16	E B 18	22	26	24	26

IONOSPHERIC DATA

MAY 1961 | f-min (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	21	18	14	18	E	13	B	32	35	B	34	20	22	22	B	37	33	B	14	B	B	E	20	B
2	12	16	29	16	31	17	16	B	36	22	20	24	36	B	43	38	30	37	B	B	B	B	14	E
3	E	E	14	15	18	18	14	36	15	17	17	17	25	37	34	27	24	18	20	20	19	B	B	B
4	62	15	E	15	15	18	14	13	E	14	19	20	20	22	19	15	24	31	B	B	B	B	E	12
5	16	12	13	15	12	13	E	14	14	13	17	B	B	29	31	23	32	20	B	E	33	E	15	22
6	E	E	19	39	23	15	16	18	17	B	B	B	36	B	B	32	37	42	B	35	17	13	13	16
7	21	33	15	E	15	B	20	18	B	B	B	B	B	43	B	B	B	B	42	B	B	B	B	13
8	13	13	18	18	14	17	18	32	28	B	B	B	37	B	B	42	31	17	19	15	B	16	E	15
9	22	22	19	22	B	17	34	B	32	B	B	B	B	B	B	B	B	B	24	B	B	B	B	17
10	13	18	17	B	26	27	18	B	14	19	32	36	27	33	42	37	B	B	B	B	B	B	B	B
11	16	12	16	37	36	B	B	C	36	B	B	B	B	B	C	33	16	33	15	20	B	12	E	18
12	14	E	33	17	24	B	44	33	B	B	B	B	46	B	B	B	B	20	14	18	B	B	24	14
13	14	12	22	B	B	B	32	B	B	22	21	23	24	44	39	B	42	40	38	17	B	14	E	13
14	12	E	12	14	23	21	B	B	B	22	24	B	43	38	36	62	41	20	18	B	B	B	B	B
15	B	B	B	B	14	18	B	B	B	B	33	38	33	43	46	43	B	B	B	B	B	B	B	E
16	16	18	22	13	31	24	B	17	34	64	B	33	B	B	43	36	30	17	14	E	23	14	E	E
17	13	18	22	E	19	18	13	13	E	18	16	19	32	24	33	E C 18	20	34	C	B	B	B	B	14
18	12	E	E	18	14	13	15	13	E	E	16	17	20	22	19	14	17	17	14	B	B	B	B	B
19	B	B	B	B	12	14	12	E	E	B	32	22	22	20	17	15	E	E	14	12	E	13	E	E
20	18	19	28	32	31	16	31	19	37	B	34	B	B	B	34	37	28	34	26	14	16	E	E	E
21	16	20	18	18	21	B	26	16	12	B	B	40	36	42	25	19	B	B	38	21	B	B	12	17
22	11	13	20	17	23	17	16	13	12	15	15	17	16	16	14	E	E	16	19	18	B	30	14	14
23	15	18	16	20	32	15	17	17	20	17	22	31	22	21	17	16	19	22	17	B	B	B	14	16
24	13	15	17	16	20	B	B	B	B	33	B	B	37	26	29	24	28	27	B	B	B	B	B	B
25	B	18	30	22	22	32	19	20	31	B	B	B	B	B	B	B	21	17	16	16	16	20	20	16
26	15	20	16	18	B	B	B	18	17	15	21	42	B	44	27	23	B	B	B	B	B	B	B	B
27	14	32	E	33	28	26	27	34	35	20	B	B	44	41	18	14	14	13	18	19	B	B	12	E
28	18	14	16	18	20	22	21	18	17	19	18	32	17	19	14	22	33	B	B	18	13	14	17	15
29	18	23	22	22	31	31	15	13	B	32	32	34	27	21	21	20	15	15	B	B	B	B	B	B
30	12	13	12	11	21	22	18	14	14	12	12	30	42	32	30	18	30	18	12	B	14	30	20	13
31	E	E	13	20	16	17	13	19	B	32	28	B	S	B	B	B	B	28	17	B	16	12	15	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	30	31	31	31	31	31
MED	15	16	17	18	22	18	19	18	31	32	32	38	36	41	34	32	30	28	22	B	B	B	17	16
UQ	18	20	22	27	31	32	39	36	D B 37	B	B	B	B	B	B	42	D B 42	D B 42	B	B	B	B	B	D B 22
LQ	12	12	14	16	16	17	16	14	14	18	20	24	24	23	21	18	20	18	16	18	21	14	12	13

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IONOSPHERIC DATA

MAY 1961 | M(3000) F2 (0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	S	A	S	U R 330	A	R	B	A	A	B	F	290	310	320	B	F 300	U R 315	B	F	B	B	F 360	R	B
2	R	A	A	A	A	A	A	B	A	F 275	F	F 360	F 310	B	J R 325	J R 355	R 290	J R 350	B	B	B	B	R	A
3	R	A	R	A	A	A	A	B	F 315	J F 330	F	R 360	330	R	R	R	R	R	R	A	R	B	B	B
4	B	R	R	R	R	R	J R 325	U R 320	R 265	R	U R 345	R	R 305	R	R	R	F	F 355	B	B	B	B	A	A
5	A	A	A	A	A	A	A	A	F	R	R	B	B	F	J F 365	F	F	R	B	R	A	A	A	A
6	A	A	A	B	A	A	A	A	A	B	B	B	J R 310	B	B	F	R	R	B	A	A	R	R	A
7	A	A	A	A	A	B	A	A	B	B	B	B	B	R	B	B	B	B	R	B	B	B	B	R
8	R	A	A	A	A	A	A	A	A	B	B	B	F 355	B	B	J F 365	J R 370	R 335	R	R	B	A	R	R
9	A	A	A	A	B	R 270	A	B	A	B	B	B	B	B	B	B	B	B	F 310	B	B	B	B	R
10	R	A	A	B	A	A	R	B	R 330	U R 340	R	R 355	F 365	R	R 355	R 370	B	B	B	B	B	B	B	B
11	A	R	F	A	A	B	B	C	A	B	B	B	B	B	C	F	F	F	J F 295	335	B	A	A	R
12	A	A	A	A	A	B	B	A	B	B	B	B	R	B	B	B	B	F	F 345	385	B	B	R	R
13	R	R	A	B	B	B	A	B	B	F	J F 325	F 350	340	J R 360	R	B	R	R	R	A	B	R	R	R
14	A	R	R	R	A	A	B	B	B	F 325	F	B	340	370	V 355	R	335	F	F	B	B	B	B	B
15	B	B	B	B	B	A	B	B	B	B	F 365	U F 340	F	F	355	R	B	B	B	B	B	B	B	A
16	A	A	A	A	R	A	B	A	A	B	B	J R 315	B	B	R	J R 340	F 370	335	R	A	R	R	A	A
17	A	A	A	A	A	A	A	A	300	315	R 335	355	F	R 350	F	360	U F 275	R	C	B	B	B	B	R
18	R	A	A	A	A	A	F 285	J F 305	F	R	350	310	360	350	R	F	F	U F 355	F	B	B	B	B	B
19	B	B	B	B	A	F	F	F	F	B	350	F	F	F	F	F	F	F 400	F	F 355	F	A	A	A
20	A	A	A	A	A	F	A	A	A	B	F	B	B	B	320	U F 355	U F 335	F 350	J R 370	R	A	R	A	A
21	A	A	A	R	R	B	A	F	F	B	B	F	335	F	F 370	J F 355	B	B	A	R	B	B	A	A
22	A	A	A	A	A	A	A	270	F	F	J F 320	F 305	R	F	R	R	F	R	F	R	B	R	R	F
23	A	A	A	A	A	F	F	F	A	F	F 300	370	F	R	J R 345	R 305	F 335	F 330	J F 325	B	B	B	R	A
24	A	A	A	A	A	B	B	B	B	A	B	B	U F 365	F 370	R 365	F 340	F 340	F 320	B	B	B	B	B	B
25	B	R	A	A	A	A	A	A	R	B	B	B	B	B	B	B	F 285	F 300	U F 350	R	A	A	A	R
26	A	A	A	A	B	B	B	A	R	F 285	310	J R 345	B	365	F 345	F 360	B	B	B	B	B	B	B	B
27	J R 350	R	F	A	A	A	A	R	F	F	B	B	R	F 345	F	360	F	F	F 340	R	B	B	R	R
28	R	A	R	A	A	A	A	A	J R 260	R 285	F	F 325	F	F 345	F	F	F	B	B	R	A	A	A	A
29	A	A	A	A	A	A	F 275	J F 285	B	F	F 295	F	F	F	F 365	F 335	F 370	F 320	B	B	B	B	B	B
30	R	R	R	F	F	A	A	F	F	F	F	U R 315	R	F	F	F	F 325	F	F	B	R	R	R	R 290
31	Z 320	F	F	R 345	R	F 280	F	F	B	F 290	F	B	S	B	B	B	B	F 335	F 310	B	R	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	2			2		2	3	4	5	8	10	14	12	9	11	13	12	12	8	3		1		1
MED	335			R 338		275	F 285	295	R 300	F 302	330	342	338	350	355	F 355	F 335	F 335	F 332	355		F 360		R 290
UQ							305	312	315	328	350	355	358	365	365	360	F 355	F 352	F 348	370				
LQ							F 280	278	R 265	F 285	F 310	315	310	345	345	F 340	F 302	F 325	F 310	345				

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IONOSPHERIC DATA

MAY 1961 | $h'F$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	220	A	A	310	A	A	B	B	B	B	B	265	275	270	B	B	270	B	225	B	B	260	A	B
2	A	A	B	A	B	A	R	B	B	280	250	270	275	B	B	260	250	280	B	B	B	B	A	A
3	A	A	A	A	A	A	A	B	A	240	225	225	225	250	220	205	230	205	225	230	B	B	B	B
4	B	A	A	A	380	395	340	305	260	205	205	200	220	205	205	205	200	230B	B	B	B	B	A	A
5	A	A	A	A	A	A	A	A	335	315	300	B	B	265	260	220	260	225	B	A	B	A	A	A
6	A	A	A	B	A	A	A	A	A	B	B	B	360	B	B	260	305	B	B	B	285	A	A	A
7	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	E B 300	B	B	B	B	A
8	A	A	A	A	A	A	A	B	B	B	B	B	260	B	B	260	230	250	225	230	B	A	300	A
9	A	A	A	B	B	370	B	B	B	B	B	B	B	B	B	B	B	B	290	B	B	B	B	A
10	A	A	A	B	B	B	A	B	300	290	250	245	225	230	225	230	B	B	B	B	B	B	B	B
11	A	225	275	B	B	B	B	C	B	B	B	B	B	B	C	240	225	240	280	300	B	A	A	A
12	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	225	220	250	B	B	A	A
13	A	A	A	B	B	B	B	B	B	B	275	230	B	B	250	B	270	270	250	A	B	A	305	A
14	A	290	A	A	B	B	B	B	B	B	235	B	B	215	220	B	B	230	225	B	B	B	B	B
15	B	B	B	B	B	A	B	B	B	B	230	B	225	B	B	B	B	B	B	B	B	B	B	A
16	A	A	A	A	B	B	B	A	B	B	B	B	B	B	B	E B 250	240	260	A	A	A	A	A	A
17	A	A	A	A	A	A	A	A	380	290	210	220	205	205	215	200	225	260	C	B	B	B	B	A
18	R	A	A	320	A	A	325	280	250	230	215	215	225	210	215	200	200	260	225	B	B	B	B	B
19	B	B	B	B	A	265	280	305	265	B	B	225	230	220	215	200	210	200	225	265	280	A	225	A
20	A	300	B	B	B	A	B	A	B	B	B	B	B	B	300	E B 285	280	E B 300	265	B	A	R	A	A
21	A	A	A	A	A	B	A	A	300	A	A	A	230	215	215	210	B	B	B	A	B	B	A	A
22	A	A	A	A	A	A	A	A	305	275	250	230	205	195	215	205	220	220	B 230	250	B	B	A	A
23	A	A	A	A	B	A	300	280	A	230	265	220	225	200	215	205	255	250	220	B	B	B	A	A
24	A	A	A	A	A	B	B	B	B	B	B	B	B 230	225	210	205	B 225	B 250	B	B	B	B	B	B
25	B	A	B	A	A	B	A	A	B	B	B	B	B	B	B	B	B 320	A	A	A	A	A	A	A
26	A	B	A	A	B	B	B	A	A	E B 300	B 270	B	B	B	225	215	B	B	B	B	B	B	B	B
27	A 250	225	225	B	B	A	B	B	B	295	B	B	B	B 230	210	205	210	205	B	270	B	B	A	A
28	A	A 220	A 250	A	A	A	A	210	A 330	320	260	265	230	215	205	B 220	B	B	B	A	A	A	A	A
29	A	A	A	A	B	B	B	A 350	B	F	B	290	225	205	210	215	220	B	B	B	B	B	B	B
30	A	A	A	A	A 215	A	A	A 325	275	225	240	B	B	210	220	215	245	220	B 205	B	R	B	R	370
31	330	300	330	325	A	A	335	335	B	E B 355	B	B	S	B	B	B	B	280	300	B	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	3	6	4	3	2	3	5	8	10	14	15	13	17	17	19	22	21	20	16	7	2	1	3	1
MED	250	258	262	320	298	370	325	305	300	U 272	250	230	225	215	215	212	230	240	225	250	282	260	300	370
UQ	290	300	302	322		382	335	330	330	295	262	265	230	230	222	230	260	260	265	268			302	
LQ	235	225	238	315		318	300	280	265	230	228	220	225	205	212	205	220	222	225	240			262	

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IONOSPHERIC DATA

MAY 1961

$h'Es$ (km)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	125	105	110	175	160	115	B	125	105	B	B	B	B	B	B	B	B	B	125	B	B	120	135	B
2	125	120	105	105	110	105	135	B	100	110	G	B	B	B	B	B	B	B	B	B	B	B	185	150
3	150	110	110	120	110	105	105	105	105	110	G	105	B	B	B	B	B	B	B	150	125	B	B	B
4	105	125	115	115	130	125	195	B	E	B	B	B	B	B	B	100	B	B	B	B	B	B	105	105
5	105	110	105	110	125	110	130	100	110	110	G	B	B	B	B	B	B	B	B	120	195	105	105	120
6	125	110	105	130	100	165	180	110	100	B	B	B	B	B	B	B	B	B	B	165	165	110	105	120
7	105	125	100	105	130	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105
8	110	115	105	100	100	105	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	105	105	110
9	105	105	105	120	B	170	125	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120
10	105	115	105	B	100	105	110	B	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B
11	105	110	125	100	100	B	B	C	100	B	B	B	B	B	C	B	B	B	B	B	B	105	100	115
12	105	100	110	105	120	B	120	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120	110
13	110	110	120	B	B	B	100	B	B	110	115	B	B	B	B	B	B	B	B	100	B	105	120	105
14	105	110	120	105	100	100	B	B	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B
15	B	B	B	B	110	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105
16	105	100	115	105	110	105	B	105	105	125	B	B	B	B	B	B	B	B	100	100	125	105	100	100
17	100	105	105	100	100	100	100	105	100	B	G	G	B	B	B	B	B	B	C	B	B	B	B	130
18	G	105	100	110	105	100	105	110	G	G	B	B	B	B	B	B	120	100	B	B	B	B	B	B
19	B	B	B	B	130	105	110	120	110	B	B	B	B	B	B	150	110	G	B	G	115	125	110	110
20	100	100	100	100	105	125	120	140	130	B	B	B	B	B	B	B	B	B	B	B	110	105	105	100
21	100	110	100	100	110	B	100	100	105	B	B	B	B	B	B	B	B	B	125	105	B	B	100	100
22	105	105	100	110	100	105	105	105	120	B	G	145	125	125	105	145	110	125	B	B	B	B	100	110
23	100	125	120	115	120	120	105	B	120	170	B	B	B	100	B	B	B	B	B	B	B	B	105	105
24	105	105	105	110	130	B	B	B	B	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B
25	B	160	125	100	105	120	105	105	110	B	B	B	B	B	B	B	B	110	105	105	105	100	110	110
26	100	100	110	140	B	B	B	100	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	105	125	125	110	110	100	120	115	135	110	B	B	B	B	B	B	B	100	B	B	B	B	135	110
28	105	100	110	110	120	140	105	100	105	105	B	B	105	B	135	B	B	B	B	120	120	105	105	105
29	105	120	115	120	120	135	120	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30	180	115	110	135	115	105	100	105	170	G	G	B	B	B	B	B	B	B	B	B	130	B	220	140
31	125	115	110	105	105	100	110	115	B	B	B	B	S	B	B	B	B	B	B	B	120	105	110	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	29	29	27	28	24	24	21	20	11	1	2	2	2	2	3	3	4	4	8	10	12	20	23
MED	105	110	110	110	110	105	108	105	108	110	115	125	115	112	120	145	110	105	115	112	122	105	105	110
UQ	110	115	115	118	120	125	120	115	118	110						148	115	118	125	135	130	108	120	118
LQ	105	105	105	105	102	105	102	100	102	110						122	110	100	102	102	115	105	105	105

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IONOSPHERIC DATA

JUN. 1961 | foF2 (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	F 52	B	B	F	A	A	A	A	A
2	A	R	F	A	B	B	A	A	R	B	24	F 35	B	B	B	B	B	40	R	B	R	A	B	B
3	R	R	A	33	R	F	A	B	B	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B
4	B	A	R	B	A	R	A	B	B	B	B	40	F 48	B	B	U F 42	U F 37	R	B	B	B	B	B	B
5	R	R	R	A	A	A	A	B	B	B	R	F	B	B	B	B	B	B	B	B	B	B	R	R
6	R	R	A	A	A	A	A	B	B	F 31	F	F	B	F	F 48	F 35	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	R	R	R	A	A	A	B
8	B	B	B	A	B	B	B	R	A	B	B	B	B	B	B	B	B	F	F	B	B	B	R	A
9	F	A	A	A	A	R	R	A	A	R	F 33	F 38	F 52	F 48	F	R	B	B	R	B	B	B	B	A
10	A	A	R	27	A	A	A	A	A	R	B	46	F	R	R 48	B	B	B	B	B	B	B	B	B
11	B	A	R	B	A	F	A	A	A	A	35	F	F	F 50	F	R	B	A	R	A	R	A	A	A
12	B	R	F	R	F	F	A	A	A	B	A	F 45	F	R	46	B	R	R	B	B	B	B	A	A
13	A	A	A	F 30	F	F	F	F	R 22	F	J R 36	40	J F 51	F	51	37	29	26	B	B	B	B	B	B
14	R	A	A	A	A	F	F	F	24	23	C	C	C	C	C	C	C	F	A	A	A	R	A	B
15	B	A	A	A	A	A	F 40	F 47	F	F	F	F	F	F	F 62	F	F	F 25	R	A	A	A	A	A
16	A	A	F	A	B	C	C	F	F	F	40	C	C	C	C	F	F	F	F	F	B	B	B	C
17	R	C	A	A	A	A	A	A	F 40	F	F	F	F	F	F	F	F	F	R	B	B	B	B	R
18	F	A	C	C	A	A	A	43	44	B	F	F 47	F	F	F	R	B	B	B	R	R	A	A	A
19	A	A	A	A	A	F	A	A	A	A	28	34	F 46	S	F 56	B	F 52	B	B	B	B	B	R	A
20	A	A	A	A	A	A	A	A	A	R	F	B	F 56	F	F 54	F	F 32	23	R	B	B	B	R	R
21	R	R	A	A	A	B	A	R	F	F	F	F	F 46	F 67	U F 68	F	F	F	R	R	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	F	F	R	R	R	A	R	A
23	A	R	R	A	R	R	R	A	R	F	F 33	43	47	57	F 50	F	F 30	28	F	B	B	B	R	B
24	A	A	A	A	B	A	B	A	B	B	B	F 41	F	63	F	52	R 31	B	B	B	B	B	B	R
25	R	A	R	A	R	39	B	F	F	F	F	F	F 50	F	F	B	B	B	B	B	R	A	A	A
26	30	A	A	A	A	A	A	A	22	F 52	F 39	45	52	57	Z 48	42	33	31	F	17	R	17	B	C
27	A	A	A	A	18	F	F	22	F	F	B	B	F	F	B	C	C	F	F	B	B	B	A	B
28	A	A	A	A	R	23	C	F	F	F	F	F	F	R	F	J F 31	J R 31	B	B	A	B	B	B	B
29	R	R	A	R	A	A	R	B	R	B	B	B	F	B	F	F	F 37	F	F 26	A	A	A	A	A
30	A	R	A	A	B	A	A	A	R	B	30	38	42	62	Z 40	31	27	B	B	B	B	B	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	1			3	1	2	1	3	5	3	9	12	10	7	11	8	10	6	1	1		1		
MED	30			30	18	31	F 40	43	24	F 31	33	40	F 49	57	F 50	40	32	27	F 26	17		17		
UQ				32				45	40	F 42	36	45	F 52	62	F 55	47	F 37	31						
LQ				28				32	22	27	30	38	F 46	54	48	33	30	25						

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										B	B	B	B	B	B	B								
2										B	B	B	B	B	B	B								
3										B	B	B	B	B	B	B								
4										B	B	B		B	B									
5										B	B	B	B	B	B	B								
6													B											
7										C	C	C	C	C	C	C								
8										B	B	B	B	B	B	B								
9										B				B										
10										A	B					B								
11										B														
12										B	A				B	B								
13												B												
14											C	C	C	C	C	C								
15										A														
16												C	C	C	C									
17										A														
18										B														
19										A	A			S		B								
20										A	A	B												
21										B	B		B											
22										B	B	B	B	B	B	B								
23										B														
24										B	B	B												
25																B								
26																								
27											B	B			B									
28																								
29										B	B	B		B										
30										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																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 1961 | foE (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										B	B	B	B	B	B	B								
2										B	B	B	B	B	B	B								
3										B	B	B	B	B	B	B								
4										B	B	B	B	B	B	B								
5										B	B	B	B	B	B	B								
6										B	A	B	B	B	B	B								
7										C	C	C	C	C	C	C								
8										B	B	B	B	B	B	B								
9										B	B	B	B	B	B	B								
10										A	B	B	B	B	B	B								
11										B	B	B	B	B	B	B								
12										B	B	B	B	B	B	B								
13										B	B	B	B	B	B	B								
14										B	C	C	C	C	C	C								
15										A	A	B	160	A	B	A								
16										A	A	C	C	C	C	B								
17										A	B	A	A	R 145	E	B								
18										B	B	B	B	B	B	B								
19										B	A	B	B	S	B	B								
20										B	B	B	B	B	B	B								
21										B	B	B	B	B	E	A								
22										B	B	B	B	B	B	B								
23										B	B	B	B	B	B	B								
24										B	B	B	A	B	B	B								
25										A	E	B	B	B	B	B								
26										A	E	B	B	B	B	B								
27										E	B	B	B	B	B	C								
28										B	A	B	B	B	B	B								
29										B	B	B	B	B	B	B								
30										B	B	B	B	B	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										1	2		1	1	2									
MED										E	E		160	R 145	E									
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 1961 | foEs (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	J X 32	J X 81	J X 78	B	B	J X 52	M 57	B	B	B	B	B	B	B	E B 23	B	B	M 33	33	J X 43	J X 40	38	J X 40
2	J X 40	J X 34	20	J X 65	B	B	J X 45	46	M 38	B	E B 19	E B 28	B	B	B	B	B	E B 32	J X 25	B	J X 27	J X 44	B	B
3	23	J X 22	J X 52	J X 28	J X 27	J X 45	M 45	M 45	B	B	B	B	B	B	E B 38	B	B	B	B	B	B	B	B	B
4	B	J X 40	34	B	J X 37	J X 27	J X 45	B	B	B	B	E B 32	E B 23	B	B	E B 21	E B 22	E B 39	B	B	B	B	B	B
5	M 22	26	J X 30	J X 32	J X 41	J X 40	J X 41	M 50	B	B	J X 37	E B 33	B	B	B	B	B	B	B	B	B	B	J X 30	28
6	31	J X 28	J X 43	47	J X 46	J X 41	J X 44	B	B	J X 30	22	E B 26	B	E B 38	E B 28	E B 26	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E B 21	E B 23	M 33	J X 52	J X 41	J X 42	J X 70
8	B	B	B	J X 42	B	B	B	J X 30	J X 43	B	B	B	B	B	B	B	B	E B 25	E B 24	B	B	B	E B 23	J X 36
9	J X 29	J X 41	J X 41	48	J X 31	J X 25	18	M 35	J X 30	E B 24	E B 20	E B 22	E B 20	E B 34	E B 23	E B 23	B	B	E B 23	B	B	B	B	J X 36
10	J X 41	41	18	J X 39	J X 41	J X 33	J X 44	J X 44	J X 30	21	B	E B 30	E B 36	E B 33	E B 32	B	B	B	B	B	B	B	B	B
11	B	M 27	J X 51	M 72	J X 71	E B 26	J X 72	J X 50	J X 96	J X 62	M 31	M 33	J X 30	E B 21	E B 21	E B 23	J B 68	J X 76	29	J X 80	M 28	J X 29	J X 32	J X 65
12	B	E B 25	J X 22	J X 28	J X 33	J X 40	J X 48	J X 46	59	B	J X 39	E B 22	E B 22	E B 22	E B 42	B	E B 31	E B 36	B	B	B	J X 62	J X 59	J X 60
13	J X 35	J X 31	J X 33	J X 31	J X 26	J X 41	J X 94	J X 92	E B 12	E B 24	E B 15	J X 31	J X 32	M 37	J X 50	E B 21	E B 17	M 27	B	B	B	B	B	B
14	J X 28	J X 43	J X 42	J X 38	J X 40	J X 31	20	E B 15	J X 71	J X 37	C	C	C	C	C	C	C	J X 62	J X 50	J X 41	J X 82	J X 66	M 32	B
15	B	J X 31	J X 87	J X 86	J X 51	J X 62	J X 66	J X 40	E B 19	J X 38	J X 33	E B 20	G	J X 23	J X 31	E B 14	E B 14	E B 20	E B 20	J X 60	J X 33	J X 31	J X 37	J X 32
16	J X 36	J X 64	J X 64	J X 71	B	C	C	J X 32	E B 20	M 27	J X 31	C	C	C	C	E B 22	E B 20	E B 16	E	17	B	B	J X 48	C
17	34	C	J X 40	J X 43	J X 46	J X 65	J X 53	J X 61	J X 66	42	M 25	18	M 24	G	M 16	30	J X 47	J X 23	M 27	B	B	B	B	37
18	J X 33	J X 94	C	C	J X 53	J X 49	J X 52	J X 32	J X 34	B	J X 26	J X 37	M 23	E B 18	E B 38	E B 32	B	B	B	J X 64	M 27	33	J X 53	J X 61
19	J X 88	J X 51	J X 58	J X 43	33	J X 31	J X 65	J X 52	J X 52	J X 52	J X 53	J X 29	J X 26	S	E B 35	B	E B 36	B	B	B	B	B	J X 22	J X 37
20	J X 40	J X 46	J X 58	J X 47	J X 46	J X 85	J X 72	J X 52	J X 52	M 29	M 29	B	E B 39	J X 73	E B 32	E B 22	E B 17	E B 19	E B 17	B	B	B	J X 40	J X 53
21	53	J X 52	J X 89	J X 63	J X 83	B	J X 51	J X 41	J X 50	E B 40	E B 27	E B 23	E B 23	18	E B 16	J X 17	29	J X 20	J X 31	31	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	E B 33	E B 33	40	J X 49	J X 39	J X 52	J X 40	J X 54
23	J X 59	J X 39	J X 35	47	J X 40	45	42	J X 48	27	E B 15	E B 17	E B 20	E B 20	E B 17	E B 20	E B 16	E B 18	E B 15	E B 15	B	B	B	J X 22	B
24	J X 35	31	J X 39	J X 48	B	J X 49	B	J X 40	B	B	B	E B 32	30	26	E B 19	E B 24	E B 19	B	B	B	B	B	B	J X 19
25	E B 20	28	20	J X 31	J X 27	42	B	J X 32	28	18	E	23	E B 20	E B 34	E B 17	B	B	B	B	B	E B 14	37	J X 40	J X 40
26	J X 27	J X 56	J X 47	J X 51	51	J X 52	J X 45	J X 36	M 20	M 18	M 22	M 23	E B 17	E B 15	E B 15	M 23	E B 21	E B 16	E	E	23	E B 14	27	C
27	J X 22	J X 28	27	32	12	J X 37	J X 64	J X 62	J X 33	J X 21	B	B	E B 23	J X 34	B	C	C	J X 37	E B 15	B	B	B	J X 67	B
28	J X 79	J X 120	J X 88	J X 46	J X 29	34	C	J X 36	J X 37	J X 54	J X 41	25	E B 21	E B 30	E B 23	E B 20	E B 27	B	B	J X 77	B	B	B	B
29	J X 30	32	J X 41	J X 47	50	J X 50	J X 30	B	J X 41	B	B	B	E B 30	B	E B 20	E B 32	E B 17	M 21	E B 18	J X 22	J X 27	J X 35	J X 36	J X 31
30	J X 37	J X 31	J X 78	J X 41	M 46	J X 39	J X 36	31	20	B	E B 20	M 28	M 23	E B 17	E B 17	E B 18	E B 17	B	B	B	B	B	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	22	26	26	26	23	23	23	25	22	17	19	20	20	18	20	18	17	18	17	12	11	12	18	16
MED	J X 34	J X 33	J X 42	J X 46	J X 41	J X 41	J X 45	J X 44	J X 36	28	26	E B 27	E B 23	E B 24	E B 23	E B 22	E B 21	E B 24	E E 23	J X 37	J X 28	J X 38	J X 38	J X 38
UQ	J X 40	J X 46	J X 58	J X 51	J X 48	J X 49	J X 58	J X 50	J X 52	J X 40	J X 32	U B 30	U 27	E B 34	E B 34	E B 24	E B 31	E B 36	29	J X 62	J X 41	J X 48	J X 42	J X 57
LQ	J X 28	J X 28	J X 33	J X 38	J X 32	J X 34	J X 43	J X 35	27	20	20	E B 22	E B 20	E B 18	E B 18	E B 20	E B 17	E B 20	E B 17	26	27	32	J X 30	J X 34

IONOSPHERIC DATA

JUN. 1961 | f-min (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	21	32	32	B	B	43	48	B	B	B	B	B	B	B	23	B	B	30	21	17	16	12	13
2	18	15	13	15	B	B	27	16	35	B	19	28	B	B	B	B	B	32	22	B	16	21	B	B
3	22	17	17	17	20	21	41	B	B	B	B	B	B	B	38	B	B	B	B	B	B	B	B	B
4	B	23	15	B	22	17	29	B	B	B	B	32	23	B	B	21	22	39	B	B	B	B	B	B
5	16	13	13	13	22	22	23	42	B	B	32	33	B	B	B	B	B	B	B	B	B	B	18	14
6	13	16	16	24	18	34	32	B	B	19	16	26	B	38	28	26	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	21	23	23	16	13	16	47
8	B	B	B	19	B	B	B	23	22	B	B	B	B	B	B	B	B	25	24	B	B	B	23	13
9	12	15	16	22	22	20	13	25	16	24	20	22	20	34	23	23	B	B	23	B	B	B	B	15
10	13	16	15	15	27	24	22	22	15	15	B	30	36	33	32	B	B	B	B	B	B	B	B	B
11	B	23	40	67	22	26	22	22	20	23	23	20	16	21	21	23	48	27	17	16	19	16	24	21
12	B	25	E	12	13	12	16	22	20	B	21	22	22	22	42	B	31	36	B	B	B	53	21	15
13	13	13	15	13	12	12	13	13	12	24	15	15	15	21	20	21	17	20	B	B	B	B	B	B
14	12	17	13	12	13	13	13	15	16	15	C	C	C	C	C	C	C	23	24	20	20	22	27	B
15	B	13	13	19	20	20	16	16	19	15	14	20	15	14	17	14	14	20	20	17	14	13	13	13
16	13	14	14	28	B	C	C	15	20	14	15	C	C	C	C	22	20	16	E	E	B	B	38	C
17	12	C	15	14	17	15	22	27	17	13	17	14	14	12	E	19	13	17	18	B	B	B	B	E
18	12	E	C	C	22	22	16	23	21	B	19	22	18	18	38	32	B	B	B	12	16	E	34	13
19	12	26	33	14	12	E	20	36	38	18	14	18	18	S	35	B	36	B	B	B	B	B	E	E
20	12	15	18	15	17	30	22	27	32	20	19	B	39	17	32	22	17	19	17	B	B	B	E	15
21	16	14	17	18	32	B	20	17	16	40	27	23	23	16	16	14	17	17	15	13	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	33	33	32	14	15	17	20	23
23	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	33	33	32	14	15	17	20	23
24	13	13	16	36	22	40	40	22	17	15	17	20	20	17	20	16	18	15	15	B	B	B	17	B
25	12	15	20	24	B	35	B	20	B	B	B	32	25	20	19	24	19	B	B	B	B	B	B	15
26	20	14	14	14	14	20	B	16	17	14	E	19	20	34	17	B	B	B	B	B	14	15	13	12
27	E	14	E	12	E	15	15	12	E	E	B	B	23	15	B	C	C	18	15	B	B	B	20	B
28	12	E	E	E	E	15	C	13	12	25	15	17	21	30	23	20	27	B	B	20	B	B	B	B
29	15	14	15	15	17	15	15	B	37	B	B	B	30	B	20	32	17	17	18	15	14	13	14	13
30	15	12	22	E	40	18	19	14	15	B	20	19	20	17	17	18	17	B	B	B	B	B	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	27	26	26	26	27	26	25	27	27	29	28	27	27	26	27	27	26	29	29	29	28	28	28	27
MED	13	15	15	15	22	20	22	22	20	25	20	26	23	32	32	24	32	33	30	B	B	B	24	21
UQ	21	17	18	24	30	34	32	32	38	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
LQ	12	13	13	13	16	15	16	16	16	15	16	20	20	17	20	21	17	20	18	17	16	16	16	13

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IONOSPHERIC DATA

JUN. 1961

M(3000) F2(0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	F 310	B	B	F	A	A	A	A	A
2	A	R	F	A	B	B	A	A	R	B	365	F 325	B	B	B	B	B	320	R	B	R	A	B	B
3	R	R	A	315	R	F	A	B	B	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B
4	B	A	R	B	A	R	A	B	B	B	B	350	F 335	B	B	U F 355	U F 310	R	B	B	B	B	B	B
5	R	R	R	A	A	A	A	B	B	B	R	F	B	B	B	B	B	B	B	B	B	B	R	R
6	R	R	A	A	A	A	A	B	B	F 300	F	F	B	F	F 355	F 350	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	R	R	R	A	A	A	B
8	B	B	B	A	B	B	B	R	A	B	B	B	B	B	B	B	B	F	F	B	B	B	R	A
9	F	A	A	A	A	R	R	A	A	R	F 325	F 345	F 365	F 370	F	R	B	B	R	B	B	B	B	A
10	A	A	R	330	A	A	A	A	A	R	B	355	F	R	R 355	B	B	B	B	B	B	B	B	B
11	B	A	R	B	A	F	A	A	A	A	330	F	F	F 335	F	R	B	A	R	A	R	A	A	A
12	B	R	F	R	F	F	A	A	A	B	A	F 345	F	R	345	B	R	R	B	B	B	B	A	A
13	A	A	A	F 300	F	F	F	F	R 320	F	J R 315	350	J F 335	F	370	335	370	325	B	B	B	B	B	B
14	R	A	A	A	A	F	F	F	310	305	C	C	C	C	C	C	C	F	A	A	A	R	A	B
15	B	A	A	A	A	A	F 285	F 275	F	F	F	F	F	F	F 355	F	F	F 370	R	A	A	A	A	A
16	A	A	F	A	B	C	C	F	F	F	310	C	C	C	C	F	F	F	F	F	B	B	B	C
17	R	C	A	A	A	A	A	A	F 285	F	F	F	F	F	F	F	F	F	R	B	B	B	B	R
18	F	A	C	C	A	A	A	265	315	B	F	F 335	F	F	F	R	B	B	B	R	R	A	A	A
19	A	A	A	A	A	F	A	A	A	A	270	315	F 305	S	F 335	B	F 345	B	B	B	B	B	R	A
20	A	A	A	A	A	A	A	A	A	R	F	B	F 325	F	F 315	F	F 270	285	R	B	B	B	R	R
21	R	R	A	A	A	B	A	R	F	F	F	F	F 260	F 255	U F 245	F	F	F	R	R	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	F	F	R	R	R	A	R	A
23	A	R	R	A	R	R	R	A	R	F	F 275	265	265	315	F 280	F	F 285	305	F	B	B	B	R	B
24	A	A	A	A	B	A	B	A	B	B	B	F 280	F	310	F	300	R 315	B	B	B	B	B	B	R
25	R	A	R	A	R	290	B	F	F	F	F	F	F 345	F	F	B	B	B	B	B	R	A	A	A
26	315	A	A	A	A	A	A	A	295	F 335	F 325	345	335	365	Z 315	315	320	325	F	345	R	365	B	C
27	A	A	A	A	300	F	F	280	F	F	B	B	F	F	B	C	C	F	F	B	B	B	A	B
28	A	A	A	A	R	285	C	F	F	F	F	F	F	R	F	J F 305	J R 290	B	B	A	B	B	B	B
29	R	R	A	R	A	A	R	B	R	B	B	B	F	B	F	F	F 320	F	F 320	A	A	A	A	A
30	A	R	A	A	B	A	A	A	R	B	320	365	370	370	Z 335	325	350	B	B	B	B	B	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	1			3	1	2	1	3	5	3	9	12	10	7	11	8	10	6	1	1		1		
MED	315			315	300	288	F 285	275	310	F 305	320	345	F 335	335	F 335	320	318	322	F 320	345		365		
UQ				322				278	315	320	325	350	F 345	368	355	342	345	325						
LQ				308				270	295	302	310	320	F 305	312	F 315	308	F 290	305						

IONOSPHERIC DATA

JUN. 1961 | $h'F$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 275	B	B	B 295	A	A	A	A	A
2	A	A	F	A	B	B	A	A	B	B	275	B	B	B	B	B	B	B	A	B	A	A	B	B
3	B	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	A	B	A	A	B	B	B	B	B	B	B 235	B	B	B 200	E B 275	B 265	B	B	B	B	B	B
5	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A
6	A	A	A	B	A	B	B	B	B	E B 330	300	260	B	B 225	245	B 230	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	295	320	A	A	A	A	B
8	B	B	B	A	B	B	B	A	A	B	B	B	B	B	B	B	B	250	280	B	B	B	350	A
9	A	A	A	A	A	A	R	B	A	B	270	220	210	B	200	220	B	B	B	B	B	B	B	A
10	A	A	R	305	B	B	B	B	A	A	B	B 250	B 245	B 225	225	B	B	B	B	B	B	B	B	B
11	B	B	B	B	A	B	A	A	A	A	B 275	215	215	200	200	200	B	B	A	A	R	A	A	A
12	B	B	A	A	A	A	A	A	A	B	A	250	210	205	B	B	B	B	B	B	B	B	A	A
13	A	A	A	A	275	295	300	260	250	B	250	200	205	200	225	B 225	205	B	B	B	B	B	B	B
14	A	A	A	A	A	A	A	305	295	275	C	C	C	C	C	C	C	F	A	A	A	A	B	B
15	B	A	A	A	A	205	A	A	B	A	265	250	220	205	200	175	215	225	275	A	A	A 295	A	A
16	A	A	250	B	B	C	C	A 350	315	290	255	C	C	C	C	205	205	230	225	A	B	B	B	C
17	200	C	A	A	A	A	A	B	A	A	275	230	230	205	200	200	240	260	A	B	B	B	B	250
18	300	A	C	C	A	A	A	A	A	B	300	300	265	250	250	245	B	B	B	R	A	A	B	A
19	A	B	B	A	A	A	A	B	B	A	A	280	B 280	S	235	B	265	B	B	B	B	B	R	A
20	A	A	A	A	A	A	A	B	B	A	A	B	285	205	250	220	230	B	230	B	B	B	370	A
21	A	330	215	A	B	B	A	A	A	B	B	260	B	230	260	230	220	B	A	A	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	300	B 310	A	A	A	A	A	B
23	A	A	A	B	A	B	B	A	A	B	230	220	210	220	200	210	215	250	240	B	B	B	A	B
24	A	A	A	B	B	B	B	A	B	B	B	B	230	230	200	200	205	B	B	B	B	B	B	A
25	B	A	A	A	A	365	B	A	365	260	250	225	235	235	225	B	B	B	B	B	200	A	A	A
26	A	A	A	A	A	A	A	A	A	305	230	215	225	225	220	210	270	235	240	240	A	200	B	C
27	A	A	A	A	E B 330	350	330	E A 310	340	290	B	B	300	230	B	C	C	230	250	B	B	B	A	B
28	A	A	A	A	A	350	C	330	300	280	250	250	250	240	210	230	B	B	B	A	B	B	B	B
29	A	F	A	200	A	A	A	B	B	B	B	B	B 300	B	E B 280	B	265	265	295	A 290	A	A	A	A
30	A	A	A	A	B	A	A	A	A	B	E B 270	235	205	215	220	225	E B 215	B	B	B	B	B	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	2	1	2	2	2	5	2	5	6	7	14	16	19	17	18	17	14	11	10	2	1	2	2	1
MED	250	330	232	252	U B 288	350	315	310	308	285	264	242	230	225	221	215	222	250	262	265	200	248	360	250
UQ						350		A 330	340	294	275	255	258	230	240	228	265	265	295					
LQ						295		U 282	295	278	250	220	212	205	200	200	215	232	240					

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IONOSPHERIC DATA

JUN. 1961 | $h'Es$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39°35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	110	120	125	B	B	120	125	B	B	B	B	B	B	B	B	B	B	130	120	105	110	105	105
2	110	130	115	110	B	B	100	100	125	B	B	B	B	B	B	B		B	100	B	115	100	B	B
3	130	105	105	100	105	110	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	125	105	B	100	115	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	170	105	110	110	110	110	110	125	B	B	115	B	B	B	B	B	B	B	B	B	B		160	110
6	110	105	110	105	105	110	105	B	B	100	105	B	B	B	B	B	S	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	125	105	105	110	160
8	B	B	B	100	B	B	B	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	110
9	110	105	110	110	110	150	125	165	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105
10	105	100	130	120	100	110	100	110	105	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B
11	B	130	130	105	110	B	130	130	105	105	105	110	100	B	B	B	130	110	105	110	105	105	160	125
12	B	B	120	135	115	100	135	100	100	B	100	B	B	B	B	B	B	B	B	B	B	160	125	160
13	110	105	105	115	125	130	165	125	B	B	B	150	145	135	120	B	B	130	B	B	B	B	B	B
14	125	125	110	110	105	125	120	B	120	110	C	C	C	C	C	C	C	120	125	115	105	160	130	B
15	B	135	120	115	100	100	105	105	B	100	110	B	G	110	105	B	B	B	B	110	110	105	110	105
16	105	105	110	100	B	C	C	105	B	160	125	C	C	C	C	C	B	B	B	E	175	B	B	175	C
17	110	C	105	100	110	175	105	100	100	105	110	110	130	G	150	160	100	100	125	B	B	B	B	105
18	115	100	C	C	110	115	100	135	100	B	105	105	125	B	B	B	B	B	B	120	125	105	130	120
19	105	105	120	105	110	105	B	130	110	100	115	110	115	S	B	B	B	B	B	B	B	B	B	125	110
20	105	105	100	100	115	120	130	100	100	105	105	B	B	100	B	B	B	B	B	B	B	B	B	110	110
21	110	110	105	100	110	B	110	110	105	B	B	B	B	140	B	115	130	130	115	115	C	C	C	C
22	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	115	105	105	100	105	110
23	105	150	110	130	110	100	100	105	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
24	105	125	110	130	B	105	B	100	B	B	B	B	110	110	B	B	B	B	B	B	B	B	B	170
25	B	125	125	110	110	105	B	100	105	110	E	120	B	B	B	B	B	B	B	B	B	105	110	105
26	105	120	105	100	100	100	105	110	115	135	135	135	B	B	B	120	B	B	E	E	150	B	175	C
27	120	120	115	120	120	150	135	120	120	150	B	B	B	130	B	C	C	120	B	B	B	B	110	B
28	120	110	105	105	100	110	C	110	110	110	105	105	B	B	B	B	B	B	B	105	B	B	B	B
29	120	105	110	100	100	105	110	B	140	B	B	B	B	B	B	B	B	170	B	155	130	120	115	115
30	125	140	110	125	120	100	100	100	110	B	B	125	125	B	B	B	B	B	B	B	B	B	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	21	25	26	26	23	22	22	23	19	13	12	9	7	6	3	3	3	7	7	11	10	11	16	16
MED	110	110	110	110	110	110	110	110	110	105	108	110	125	120	120	120	130	120	115	115	108	105	120	110
UQ	120	125	120	120	110	120	130	125	118	110	115	125	128	135	135	140	130	130	125	122	125	115	145	124
LQ	105	105	105	100	102	105	105	100	105	105	105	110	112	110	112	118	115	115	110	110	105	105	110	105

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IONOSPHERIC DATA

JUL. 1961 | foF2 (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	R	R	A	A	B	A	A	A	B	B	B	R	F	B	B	B	B	B	B	B	B	A
2	A	A	A	A	A	A	A	A	A	B	B	B	B	50	F	F	F	F 29	25	R	R	A	A	A
3	R	A	F 43	A	A	F	F	F	F	17	B	B	B	F	F	48	F	F	C	A	R	R	R	A
4	A	S	B	F	A	A	F	F	F	F	F	F	F	F	F	58	F	B	R	A	B	B	B	R
5	A	A	C	A	A	B	B	A	B	A	B	B	B	B	F	B	B	R	R	A	R	A	A	A
6	A	B	B	B	B	A	R	B	B	B	R	B	B	45	J F 51	F	B	B	F	R	A	A	R	A
7	A	R	A	A	A	A	B	A	B	B	B	B	B	B	J R 52	B	B	S	S	S	B	B	B	B
8	17	17	R	A	A	A	B	B	R	F	B	B	B	B	B	C	C	B	B	B	B	B	B	R
9	R	R	A	B	A	R	R	B	B	B	B	B	B	F	R 52	F	B	B	B	B	B	B	B	B
10	R	A	A	R	A	A	A	B	B	C	B	B	B	B	B	B	3	B	B	B	B	B	B	B
11	A	A	A	A	R	A	B	R	A	B	B	50	F 52	F 58	53	F	28	28	F	B	B	B	R	A
12	A	A	A	A	A	A	A	32	F	F	B	C	F	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B
15	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F	B	B	B	R	R	R
16	A	B	B	B	B	B	B	R	R	B	B	B	B	B	B	B	F	F	B	B	B	A	F	A
17	B	A	A	R	B	C	A	B	B	B	F	F	F	F 55	B	F	F	C	F	B	A	R	A	A
18	A	A	R	A	R	R	R	R	B	B	B	B	B	B	B	F	F 71	B	C	B	B	A	B	B
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	R
21	R	F	A	B	R	B	B	R	B	B	B	B	B	B	B	37	40	43	R	A	A	R	R	A
22	A	A	A	A	A	A	A	A	A	A	B	B	B	F	F	F	F 36	F	F 30	F	B	B	B	B
23	R	R	A	A	A	A	R	F 27	F	27	40	52	F 62	63	F	F	F	F	R	A	A	A	A	R
24	A	A	A	R	A	R	R	A	B	B	B	F	R	R	B	B	B	B	B	B	B	B	B	R
25	A	A	A	A	R	A	B	R	B	A	B	B	F	B	B	F	56	F	32	R	B	R	B	A
26	R	A	A	A	B	A	42	B	B	R	37	F 52	F 58	F 59	F 60	F	R	R	B	B	B	B	B	B
27	A	B	S	B	F	A	R	A	A	F	F 43	F	B	B	F	F	F	R	F	R	A	F	A	A
28	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	F 48	F 40	F 40	F	F 22	B	B	B	A
29	A	A	R	A	R	R	A	A	B	B	B	F	B	B	B	B	B	47	35	B	B	B	R	R
30	A	A	A	B	A	A	A	R	F 32	B	B	B	B	F	F	53	F 52	F	F	B	B	B	R	R
31	A	A	R	R	R	F 18	F	F	F	27	41	F 56	F 66	F 62	F	F	F	F	R	F	B	B	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	1			1	1	2	1	3	4	4	4	7	5	5	7	5	4	1				
MED	17	17	F 43			F 18	42	30	F 32	27	40	52	F 60	F 58	52	48	F 40	40	31	F 22				
UQ										27	42	54	F 64	F 60	53	53	54	43	34					
LQ										22	38	51	F 55	52	J R 52	48	38	F 29	28					

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IONOSPHERIC DATA

JUL. 1961 | foF1 (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	B	B	B	B	B		B	B							
2									A	B	B	B	B											
3											B	B	B											
4																								
5									B	B	B	B	B	B	B	B	B							
6									B	B	A	B	B			B	B							
7									B	B	B	B	B	B	B	B	B							
8									A		B	B	B	B	B	C	C							
9									B	B	B	B	B				B							
10									B	C	B	B	B	B	B	B	B							
11									A	B	B		B		B									
12											B	C	B	B	B	B	B							
13									B	B	B	B	B	B	B	B	B							
14									B	B	B	B	B	B	B	B	B							
15									B	B	B	B	B	B	B	B	B							
16									B	B	B	B	B	B	B	B								
17									B	B					B	B	B							
18									B	B	B	B	B	B	B									
19									B	B	B	B	B	B	B	B	B							
20									C	S	S	S	S	S	S	S	S							
21									B	B	B	B	B	B	B	B								
22									A	A	B	B	B	B		B								
23									A	A					B	B								
24									B	B	B	B	B	B	B	B	B							
25									B		B	B	B	B	B	B	B							
26									B	A	B						B							
27									A	A	B	B	B	B	A	B								
28									B	B	B	B	B	B	B	B								
29									B	B	B	B	B	B	B	B	B							
30										B	B	B	B	B	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																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 1961 | foE (0.01) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									B	B	B	B	B	B	B	B	B							
2									B	B	B	B	B	B	B	B	B							
3									B	A	B	B	B	B	B	B	B							
4									B	B	B	B	B	B	B	B	B							
5									B	B	B	B	B	B	B	B	B							
6									B	B	B	B	B	B	B	B	B							
7									B	B	B	B	B	B	B	B	B							
8									A	B	B	B	B	B	B	C	C							
9									B	B	B	B	B	B	B	B	B							
10									B	C	B	B	B	B	B	B	B							
11									B	B	B	B	B	B	B	B	B							
12									R 185	B	B	C	B	B	B	B	B							
13									B	B	B	B	B	B	B	B	B							
14									B	B	B	B	B	B	B	B	B							
15									B	B	B	B	B	B	B	B	B							
16									B	B	B	B	B	B	B	B	B							
17									B	B	B	B	B	B	B	B	B							
18									B	B	B	B	B	B	B	230	B							
19									B	B	B	B	B	B	B	B	B							
20									C	S	S	S	S	S	S	S	S							
21									B	B	B	B	B	B	B	B	B							
22									A	A	B	B	B	B	B	B	B							
23									B	A	R	B	B	B	B	B	B							
24									B	B	B	B	B	B	B	B	B							
25									B	B	B	B	B	B	B	B	B							
26									B	B	B	B	B	B	B	B	B							
27									B	B	B	B	B	B	B	B	A							
28									B	B	B	B	B	B	B	F	E							
29									B	B	B	B	B	B	B	B	B							
30									B	B	B	B	B	B	B	B	B							
31									B	A	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									1							1	1							
MED									R 185							230	E							
UQ																								
LQ																								

IONOSPHERIC DATA

JUL. 1961

foEs (0.1)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			15	J X 33	48	J X 46		J X 52	J X 48	J X 40	B	B	B	E B 44	E B 27	B	B		B	B	B	B	B	J X 77
2	J X 80	J X 80	J X 62	J X 37	J X 46	J X 46	J X 44	J X 47	J X 40	B	B	B	B	37	E B 18	E B 18	E B 15	M 24	E B 15	J X 25	M 18	42	36	J X 30
3	24	29	J X 39	45	J X 44	M 22	M 17	E B 13	E B 13	J X 22	B	B	B	E B 18	E B 15	E B 22	E B 17	E B 22	C	42	J X 26	J X 26	J X 25	J X 57
4	J X 46	S	E B 39	J X 47	J X 40	J X 41	J X 32	J X 36	J X 25	E B 17	E B 20	E B 22	J X 22	E B 21	E B 20	E B 27	M 22	B	E B 20	20	B	B	B	J X 22
5	J X 78	J X 77	C	J X 34	J X 88	J X 77	J X 70	J X 42	B	J X 48	B	B	B	B	E B 35	B	B	J X 29	M 34	J X 39	J X 21	38	J X 36	J X 49
6	J X 50	B	B	B	B	J X 46	M 40	B	B	B	M 23	B	B	E B 21	E B 17	E B 32	B	B	E B 23	17	D	J X 39	J X 18	J X 31
7	J X 38	M 28	J X 77	J X 92	J X 51	J X 77	B	J X 49	B	B	B	B	B	B	E B 47	B	B	S	S	S	B	B	B	B
8	14	17	J X 23	J X 32	J X 48	J X 52	B	B	J X 25	E B 20	B	B	B	B	B	C	C	B	B	B	B	B	B	M 28
9	M 18	J X 27	J X 61	B	J X 41	J X 23	19	B	B	B	B	B	B	E B 18	E B 36	E B 28	B	B	B	B	B	B	B	B
10	J X 21	J X 30	J X 38	J X 28	J X 51	J X 46	J X 46	B	B	C	B	B	B	B	B	B	B	B	B	B	M 29	B	B	B
11	32	J X 51	J X 40	38	25	J X 46	B	J X 29	44	B	B	J X 26	E B 32	E B 22	E B 28	E B 18	E B 17	21	E B 15	B	B	B	17	J X 29
12	32	J X 41	J X 44	J X 92	J X 45	J X 48	J X 42	51	G	E B 15	B	C	E B 32	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	17	B
15	S	B	J X 40	B	B	B	B	B	J X 76	B	B	B	B	B	B	B	B	E B 35	B	B	B	J X 29	J X 30	E B 32
16	J X 74	M 40	B	B	B	B	B	M 37	J X 31	B	B	B	B	B	B	B	E B 37	E B 31	B	B	B	37	J X 36	J X 36
17	B	J X 36	J X 37	M 27	B	C	J X 52	B	B	B	E B 23	E B 23	E B 23	E B 22	B	E B 41	E B 42	C	E B 41	B	J X 52	M 26	J X 91	J X 65
18	J X 50	J X 52	J X 84	47	J X 30	J X 52	30	30	B	B	B	B	B	B	B	G	E B 38	B	C	J X 80	E B 43	J X 38	J X 48	M 47
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	E B 37
21	J X 40	M 27	J X 41	B	M 32	B	J X 57	M 32	B	B	58	B	B	B	B	E B 32	E B 22	E B 25	33	J X 66	J X 60	34	32	47
22	32	J X 33	J X 39	J X 33	J X 63	J X 47	51	J X 42	J X 40	44	B	B	B	E B 38	E B 13	E B 30	E B 19	E B 18	E B 16	M 23	B	B	B	B
23	J X 78	29	35	45	J X 40	J X 37	32	31	M 19	J X 71	E B 15	E B 19	E B 19	E B 19	E B 42	E B 32	E B 24	E B 20	J X 22	40	38	J X 43	42	J X 37
24	J X 82	J X 49	J X 44	J X 37	J X 42	J X 29	M 37	M 46	B	B	B	E B 37	E B 42	E B 48	B	B	B	B	B	B	B	B	B	22
25	33	41	J X 32	J X 80	38	J X 72	B	J X 79	B	59	B	B	E B 35	B	B	E B 41	E B 38	E B 42	E B 22	E B 20	B	24	B	J X 48
26	J X 34	J X 60	J X 51	J X 66	B	J X 41	J X 52	B	B	J X 33	E B 28	E B 24	E B 24	E B 24	E B 42	E B 42	E B 47	E B 35	B	B	B	B	B	B
27	J X 52	J X 56	S	J X 71	J X 62	J X 66	47	57	J X 51	J X 27	E B 32	E B 32	B	B	M 27	E B 50	J X 86	36	M 26	J X 29	J X 36	J X 72	J X 107	J X 36
28	B	M 46	M 44	J X 49	J X 26	B	B	B	B	B	B	B	B	B	B	E B 35	E B 24	E B 18	E B 12	E	B	B	B	J X 51
29	M 38	M 42	J X 24	J X 30	J X 28	M 27	M 44	45	B	B	B	E B 37	B	B	B	B	B	E B 26	E B 26	B	B	B	M 23	J X 28
30	30	M 30	53	M 48	50	J X 44	J X 52	33	22	B	B	B	B	E B 37	E B 37	E B 35	E B 20	E B 28	E B 19	B	B	B	J X 29	30
31	37	J X 30	J X 20	J X 26	M 21	13	E	J X 21	E B 14	17	22	E B 20	E B 21	E B 22	27	E B 17	E B 24	E B 28	E B 35	E B 23	B	B	J X 32	J X 32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	23	23	22	22	22	19	19	14	12	8	9	9	14	15	17	16	16	15	13	10	12	16	22
MED	J X 38	J X 40	J X 40	J X 42	J X 43	J X 46	44	42	J X 28	30	E B 23	E B 24	E B 24	E B 22	E B 27	E B 32	E B 24	E B 27	E B 22	25	U 34	38	J X 32	J X 35
UQ	J X 51	J X 50	J X 48	J X 49	J X 50	J X 52	J X 52	J X 48	J X 44	J X 46	U B 26	E B 32	E B 32	E B 37	E B 36	E B 35	E B 38	E B 33	U B 26	J X 40	52	J X 40	J X 39	J X 48
LQ	32	30	J X 35	J X 33	J X 32	J X 37	32	32	19	E B 18	E B 21	E B 22	E B 22	E B 21	E B 19	E B 22	E B 20	E B 22	E B 18	U 18	J X 26	28	J X 24	J X 30

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IONOSPHERIC DATA

JUL. 1961 | f-min (0.1) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	E	E	21	31	B	22	18	33	B	B	B	44	27	B	B	B	B	B	B	B	B	38
2	14	14	12	15	16	17	14	14	16	B	B	B	B	32	18	18	15	17	15	15	16	18	17	15
3	14	12	20	22	15	14	13	13	13	14	B	B	B	18	15	22	17	22	C	23	17	15	20	E
4	17	S	39	19	18	15	15	18	15	17	20	22	19	21	20	27	20	B	20	17	B	B	B	15
5	17	13	C	18	18	58	42	21	B	38	B	B	B	B	35	B	B	24	24	11	16	14	12	20
6	22	B	B	B	B	39	38	B	B	B	19	B	B	21	17	32	B	B	23	13	18	16	16	15
7	16	22	17	17	32	21	B	34	B	B	B	B	B	B	47	B	B	S	S	S	B	B	B	B
8	E	12	12	14	22	19	B	B	15	20	B	B	B	B	B	C	C	B	B	B	B	B	B	21
9	12	12	22	B	21	15	15	B	B	B	B	B	B	18	36	28	B	B	B	B	B	B	B	B
10	15	13	14	14	17	21	39	B	B	C	B	B	B	B	B	B	B	B	B	B	24	B	B	B
11	12	24	19	17	16	18	B	18	18	B	B	18	32	22	28	18	17	18	15	B	B	B	12	14
12	12	16	15	21	19	19	17	17	17	15	B	C	32	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12	B	B
15	S	B	36	B	B	B	B	B	46	B	B	B	B	B	B	B	B	35	B	B	B	21	23	32
16	27	38	B	B	B	B	B	32	22	B	B	B	B	B	B	B	37	31	B	B	B	18	17	25
17	B	20	20	22	B	C	34	B	B	B	23	23	23	22	B	41	42	C	41	B	20	18	23	22
18	25	25	22	22	26	38	26	20	B	B	B	B	B	B	B	22	38	B	C	61	43	32	39	39
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	37
21	26	23	23	B	25	B	52	24	B	B	52	B	B	B	B	32	22	25	28	41	22	15	15	24
22	17	17	18	13	18	22	19	18	14	13	B	B	B	38	13	30	19	18	16	15	B	B	B	B
23	17	17	18	13	18	22	19	18	14	13	B	B	B	38	13	30	19	18	16	15	B	B	B	B
24	17	12	15	19	17	14	13	13	16	14	15	19	19	19	42	32	24	20	20	30	19	17	15	35
25	15	15	18	19	15	17	B	39	B	25	B	B	35	B	B	41	38	42	22	20	B	20	B	15
26	13	15	14	17	B	19	22	B	B	28	28	24	24	24	42	42	47	35	B	B	B	B	B	B
27	29	36	S	30	19	22	20	32	21	22	32	32	B	B	20	50	17	18	18	14	13	14	15	15
28	B	42	38	39	21	B	B	B	B	B	B	B	B	B	B	35	24	18	12	E	B	B	B	23
29	32	31	18	17	22	19	35	35	B	B	B	37	B	B	B	B	B	26	26	B	B	B	15	15
30	15	20	23	40	19	30	18	17	17	B	B	B	B	37	37	35	20	28	19	B	B	B	E	14
31	17	17	17	15	16	12	E	15	14	12	17	20	21	22	20	17	24	28	35	23	B	B	14	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	28	28	27	29	29	28	29	30	30	29	30	29	30	30	30	29	29	28	26	28	29	29	29	30
MED	17	20	19	19	21	22	35	32	D B 46	B	B	B	B	B	44	41	38	33	27	D B 61	B	B	39	24
UQ	28	37	30	40	32	48	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
LQ	14	14	16	17	18	18	18	18	16	20	52	37	35	22	20	30	20	21	19	16	22	18	15	15

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IONOSPHERIC DATA

JUL. 1961

M(3000) F2(0.01)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	R	R	A	A	B	A	A	A	B	B	B	R	F	B	B	B	B	B	B	B	B	A
2	A	A	A	A	A	A	B	B	B	B	B	B	B	360	F	F	F	F 340	335	R	R	A	A	A
3	R	A	F 350	A	A	F	F	F	F	275	B	B	B	F	F	340	F	F	C	A	R	R	R	A
4	A	S	B	F	A	A	F	F	F	F	F	F	F	F	F	315	F	B	R	A	B	B	B	R
5	A	A	C	A	A	B	B	A	B	A	B	B	B	B	F	B	B	R	R	A	R	A	A	A
6	A	B	B	B	B	A	R	B	B	B	R	B	B	335	J F 305	F	B	B	F	R	A	A	R	A
7	A	R	A	A	A	A	B	A	B	B	B	B	B	B	J R 355	B	B	S	S	S	B	B	B	B
8	335	355	R	A	A	A	B	B	R	F	B	B	B	B	B	C	C	B	B	B	B	B	B	R
9	R	R	A	B	A	R	R	B	B	B	B	B	B	F	R 345	F	B	B	B	B	B	B	B	B
10	R	A	A	R	A	A	A	A	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B
11	A	A	A	A	R	A	B	R	A	B	B	355	345	360 F	365	F	345	340	F	B	B	B	R	A
12	A	A	A	A	A	A	A	305	F	F	B	C	F	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B
15	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F	B	B	B	R	R	R
16	A	B	B	B	B	B	B	R	R	B	B	B	B	B	B	B	F	F	B	B	B	A	F	A
17	B	A	A	R	B	C	A	B	B	B	F	F	F	F 345	B	F	F	C	F	B	A	R	A	A
18	A	A	R	A	R	R	R	R	B	B	B	B	B	B	B	F	F 280	B	C	B	B	A	B	B
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	R
21	R	F	A	B	R	B	B	R	B	B	B	B	B	B	B	310	300	305	R	A	A	R	R	A
22	A	A	A	A	A	A	A	A	A	A	B	B	B	F	F	F	F 335	F	F 325	F	B	B	B	B
23	R	R	A	A	A	A	R	F 280	F	310	350	360	F 370	350	F	F	F	F	R	A	A	A	A	R
24	A	A	A	R	A	R	R	A	B	B	B	F	R	R	B	B	B	B	B	B	B	B	B	R
25	A	A	A	A	R	A	B	R	B	A	B	B	F	B	B	F	320	F	365	R	B	R	B	A
26	R	A	A	A	B	A	370	B	B	R	315	F 345	F 345	F 360	F 350	F	R	R	B	B	B	B	B	B
27	A	B	F	B	F	A	R	A	A	F	F 315	F	B	B	F	F	F	R	F	R	A	F	A	A
28	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	F 370	F 345	F 350	F	F 350	B	B	B	A
29	A	A	R	A	R	R	A	A	B	B	B	F	B	B	B	B	B	360	370	B	B	B	R	R
30	A	A	A	B	A	A	A	R	F 325	B	B	B	B	F	F	340	F 370	F	F	B	B	B	R	R
31	A	A	R	R	R	F 305	F	F	F	335	345	F 360	F 365	F 310	F	F	F	F	R	F	B	B	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	1			1	1	2	1	3	4	4	4	7	5	5	7	5	4	1				
MED	335	355	F 350			F 305	370	292	F 325	310	330	358	F 355	F 350	350	340	F 335	340	350	F 350				
UQ										322	348	360	F 368	360	355	340	F 345	F 350	368					
LQ										292	315	350	345	340	F 345	315	310	340	330					

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IONOSPHERIC DATA

JUL. 1961 | h'F (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4' N. Long. 39° 35.4' E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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 195	A	A	B	B	A	A	B	B	B	B	B	250	B	B	B	B	B	B	B	B	B
2	A	A	A	A	A	A	A	A	A	B	B	B	B	250	220	235	250	250	270	A	R	A	A	A
3	A	A	A 295	A	A	A	345	305	285	335	B	B	B	225	200	B	205	250	C	A	A	A	225	A
4	A	S	B	A	A	A	A 360	325	265	250	B	B	220	225	220	245	230	B	225	A	B	B	B	A
5	A	A	C	A	A	B	B	A	B	B	B	B	B	B	B	B	B	A	B	A	A	A	A	A
6	A	B	B	B	B	B	B	B	B	B	A	B	B	235	225	B	B	B	250	A	A	A	A	A
7	A	B	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	S	S	S	B	B	B	B
8	A	A	A	A	A	A	B	B	A	305	B	B	B	B	B	C	C	B	B	B	B	B	B	B
9	A	A	B	B	B	A	A	B	B	B	B	B	B	225	235	250	B	B	B	B	B	B	B	B
10	A	A	A	A	A	A	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B
11	A	B	A	A	A	A	B	A	A	B	B	230	B	205	B	215	225	300	235	B	B	B	A	A
12	A	A	A	A	A	A	A	A	R 280	B 300	B	C	B	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
15	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	265
16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	230	B	B	B	A	A	B
17	B	A	A	A	B	C	B	B	B	B	225	225	225	205	B	B	B	C	225	B	A	A	A	B
18	B	B	305	B	B	B	B	A	B	B	B	B	B	B	B	340	325	B	C	B	B	b	B	B
19	B	B	B	B	B	B	B	B	B	B	B	B 265	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	290
21	A	290	A	B	300	B	B	A	B	B	B	B	B	B	B	B	300	320	210	A	A	225	190	A
22	A	270	A	260	A	A	A	A	A	A	B	B	B	B	250	B	220	265	275	250	B	B	B	B
23	R	A	A	A	A	A	A	A 335	A	A	225	225	225	225	B	B	B 240	250	B 270	B	A	A	A	B
24	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A
25	A	A	A	A	255	B	B	B	B	B	B	B	B	B	B	B	B	225	225	B	B	A	B	A
26	205	A	A	215	B	A	A 265	B	B	A	B	255	230	225	260	250	B	225	B	B	B	B	B	B
27	B	B	S	B	A 375	225	A	B	A	A	B	B	B	B	A	B	A 275	A	A	A	A	F	A	A
28	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	230	230	210	250	B	B	B	B
29	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B 280	240	B	B	B	A	A
30	A	A	A	B	A	B	A	A	A 280	B	B	B	B	B	B	B	200	270	215	B	B	B	A	325
31	A	A	A	A	A	A 320	315	305	330	225	235	190	210	205	205	195	220	B	B	B	B	B	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	2	3	2	3	2	4	4	5	5	3	6	5	10	9	7	13	12	12	2		1	2	3
MED	205	280	A 295	238	300	272	330	315	280	300	225	228	225	225	225	245	230	250	230	250		225	208	290
UQ			300		338		352	330	285	305	230	255	225	225	250	250	250	275	260					308
LQ			A 245		278		290	305	280	250	225	225	220	205	220	225	220	230	220					278

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IONOSPHERIC DATA

JUL. 1961 | $h'Es$ (km) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69° .4'N. Long. 39° 35.4'E Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation

Hour / Day	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	110	105	100	130	B	100	100	125	B	B	B	B	B	B	B	B	B	B	B	B	B	165
2	180	150	115	120	105	105	105	110	105	B	B	B	B	105	B	B	B	135	B	125	130	110	105	105
3	110	115	125	110	105	125	125	B	B	100	B	B	B	B	B	B	B	B	C	120	120	135	120	125
4	110	S	B	120	125	120	120	115	125	B	B	B	120	B	B	B	125	B	B	125	B	B	B	125
5	115	105	C	115	105	160	125	105	B	115	B	B	B	B	B	B	B	125	165	105	110	125	105	110
6	105	B	B	B	B	100	130	B	B	B	110	B	B	B	B	B	B	B	B	155	130	105	105	115
7	115	130	100	150	100	110	B	100	B	B	B	B	B	B	B	B	B	S	S	S	B	B	B	B
8	140	140	105	105	115	105	B	B	100	B	B	B	B	B	B	C	C	B	B	B	B	B	B	135
9	105	105	105	B	105	105	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
10	130	120	120	110	115	105	100	B	B	C	B	B	B	B	B	B	B	B	B	B	125	B	B	B
11	110	125	110	110	110	115	B	105	105	B	B	110	B	B	B	B	B	135	B	B	B	B	170	155
12	115	105	110	105	105	110	105	110	G	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B
13	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	145	B
15	S	B	125	B	B	B	B	B	130	B	B	B	B	B	B	B	B	B	B	B	B	130	125	B
16	100	150	B	B	B	B	B	125	115	B	B	B	B	B	B	B	B	B	B	B	B	105	105	110
17	B	105	105	125	B	C	100	B	B	B	B	B	B	B	B	B	B	C	B	B	150	150	175	120
18	105	100	120	105	105	115	105	125	B	B	B	B	B	B	B	G	B	B	C	200	B	200	125	135
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	S	S	S	S	S
20	S	S	S	S	S	S	S	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	B
21	125	125	100	B	125	B	100	115	B	B	135	B	B	B	B	B	B	B	150	180	180	105	115	105
22	105	115	170	115	105	110	105	105	105	105	B	B	B	B	B	B	B	B	B	130	B	B	B	B
23	120	105	105	105	105	110	105	180	175	105	B	B	B	B	B	B	B	B	110	110	170	105	105	140
24	100	110	110	105	105	110	125	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150
25	115	110	100	100	105	120	B	125	B	100	B	B	B	B	B	B	B	B	B	B	B	125	B	110
26	110	110	105	105	B	100	105	B	B	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	110	135	S	125	125	170	120	115	110	125	B	B	B	B	170	B	110	105	130	130	105	125	105	105
28	B	110	130	105	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E	B	B	B	185
29	105	110	105	105	105	110	105	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	105
30	110	115	120	105	100	110	105	105	165	B	B	B	B	B	B	B	B	B	B	B	B	B	135	105
31	110	110	125	100	115	120	E	105	B	110	115	B	B	B	105	B	B	B	B	B	B	B	105	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	23	22	22	22	22	18	18	11	9	3	1	1	1	2		2	4	4	10	9	12	16	20
MED	110	110	110	105	105	110	105	110	110	105	115	110	120	105	138		118	130	140	128	130	125	118	118
UQ	115	125	120	115	115	120	120	115	128	115	125							135	158	155	150	132	130	138
LQ	105	108	105	105	105	105	105	105	105	105	112							115	120	120	120	105	105	105

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