1949年

二月

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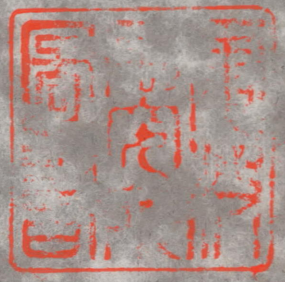
106

106

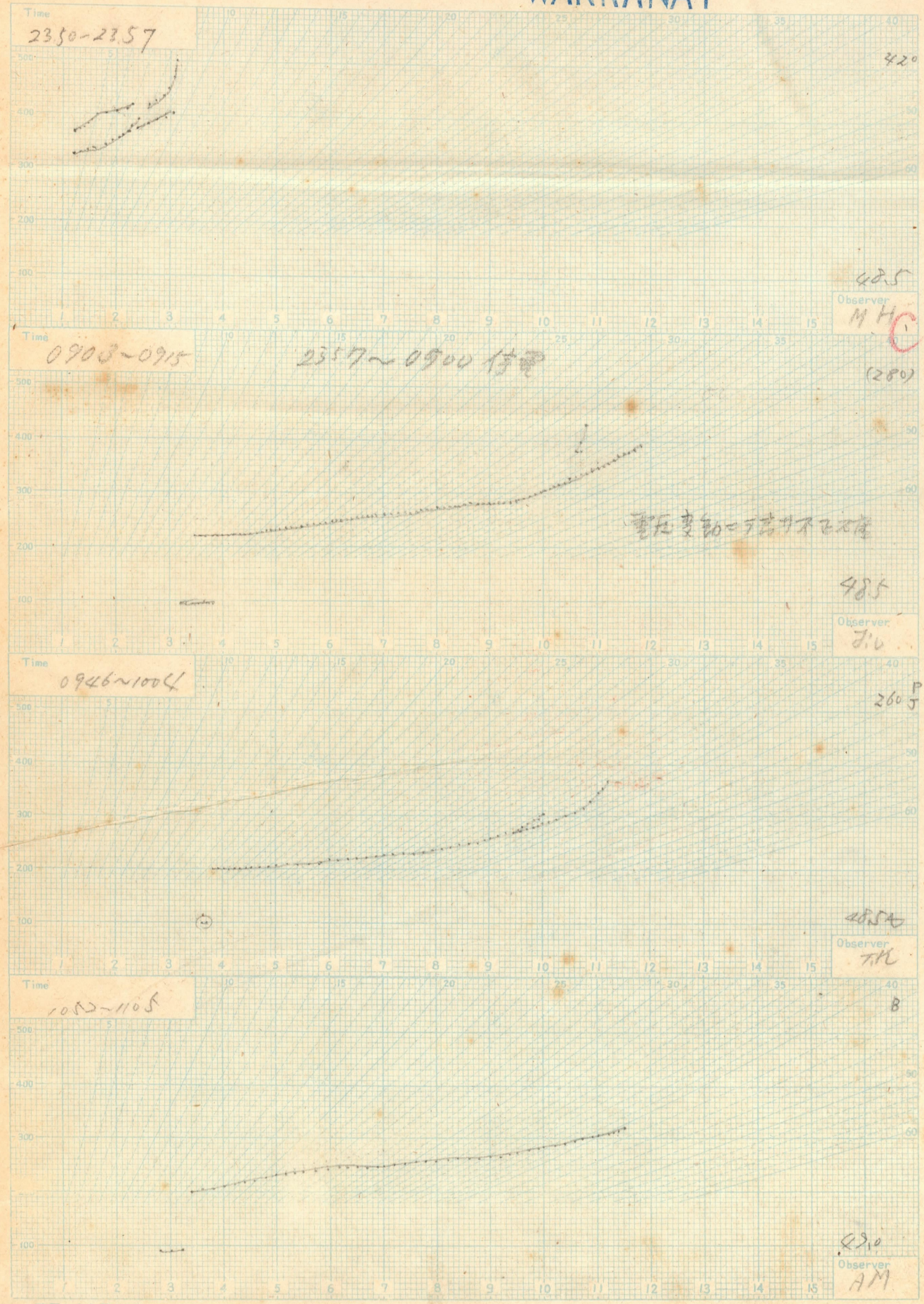


IONOSPHERIC RECORD

135°E MEAN TIME

DATE 2. 1 1949 STATION WAKKANAI NO 7210

1



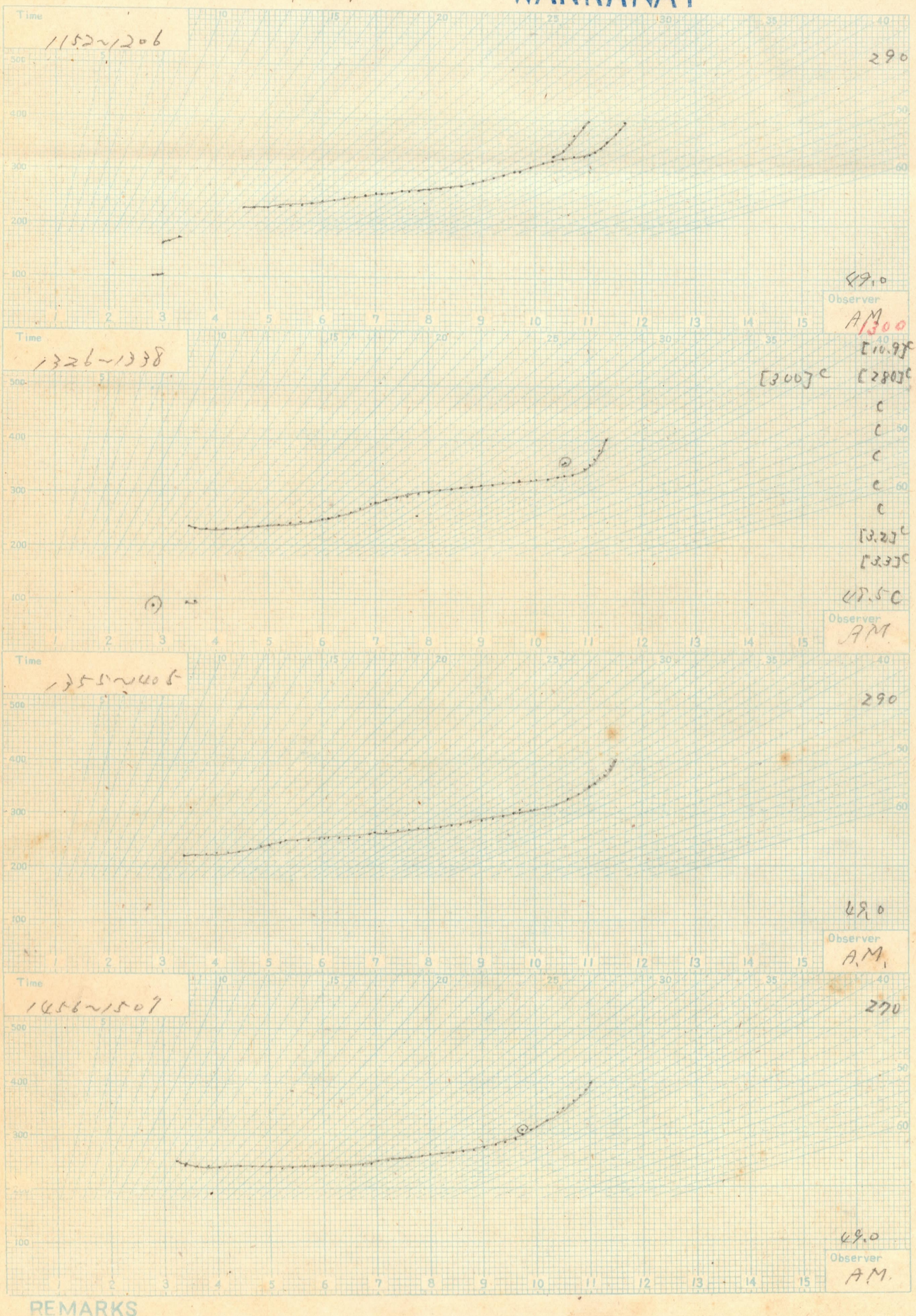
$f°F_2$	3.1
$h'F_2$	320
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	8.6
M_{3000}	2.7
$f°F_2$	(10.8)
$h'F_2$	(220)
$f°F_1$	Q
$h'F_1$	Q
$f°E$	B
$h'E$	B
fE_s	3.8
fF_{min}	3.5
fE_{min}	3.2
3000 MUF	34.0
M_{3000}	(8.1)
$f°F_2$	10.8 P J
$h'F_2$	200
$f°F_1$	Q
$h'F_1$	Q
$f°E$	B
$h'E$	B
fE_s	(3.7)
fF_{min}	3.8
fE_{min}	(3.6)
3000 MUF	(3.4) E P
M_{3000}	J P
$f°F_2$	B
$h'F_2$	250
$f°F_1$	L
$h'F_1$	200
$f°E$	A
$h'E$	B
fE_s	3.2
fF_{min}	3.4
fE_{min}	2.8
3000 MUF	
M_{3000}	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE 2. 1 1949 STATION WAKKANAI NO 7211



$f°F_2$	11.2	10.8J	11.0J	10.6J
$h'F_2$	230	300	230	250
$f°F_1$	Q	Q L	L	Q
$h'F_1$	Q	Q 230	220	Q
$f°E$	B	B	B	B
$h'E$	A	B	B	B
fE_s	B	(3.6)	B	B
ff_{min}	4.5	3.5	3.X	3.2
fE_{min}	2.8	(2.5)	B	B
3000 MUF	36.0			
M_{3000}	3.2	J	J	J

REMARKS

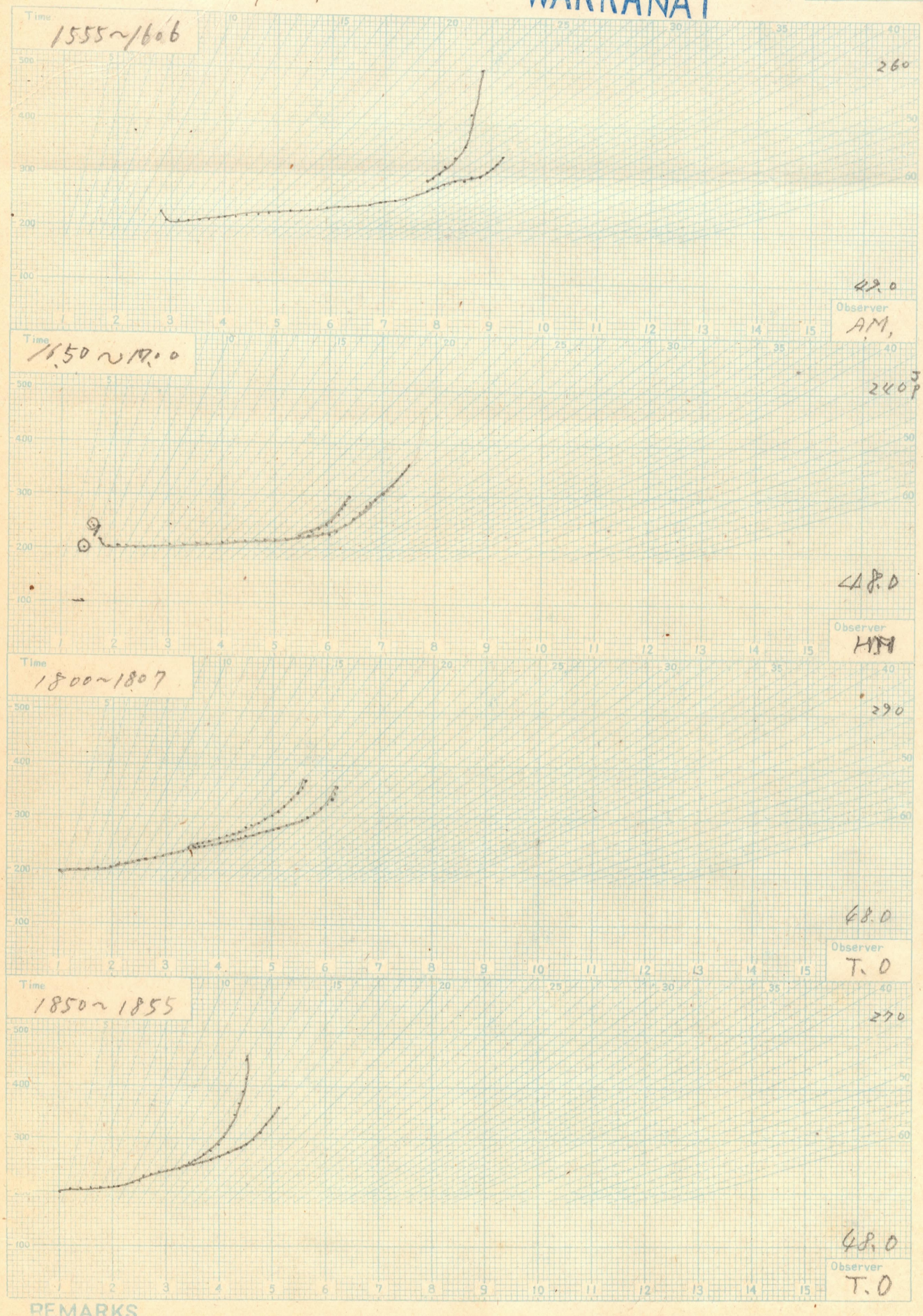
IONOSPHERIC RECORD

135°E MEAN TIME

DATE 2. 1 1949

STATION WAKKANAI

NO 7212



$f°F_2$	8.9
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	(2.1)B
$h'E$	B
fE_s	B
fF_{min}	2.8
fE_{min}	B
3000 MUF	29.0
M_{3000}	3.2
	7.1 JP
$f°F_2$	
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	(1.7)
$h'E$	A
fE_s	(1.4)
fF_{min}	1.7
fE_{min}	(1.2)
3000 MUF	~~2.5~~
M_{3000}	3.7 J P
$f°F_2$	5.7
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	18.5
M_{3000}	3.2
$f°F_2$	4.5
$h'F_2$	200
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	15.0
M_{3000}	3.3

REMARKS

IONOSPHERIC RECORD

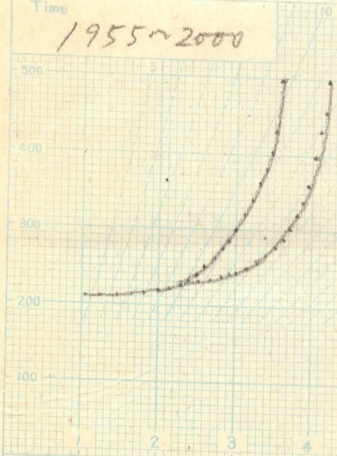
135°E MEAN TIME

DATE FEB. 1st 1949

STATION WAKKANAI NO 7213

VIRTUAL HEIGHT IN KM

Time 1955~2000



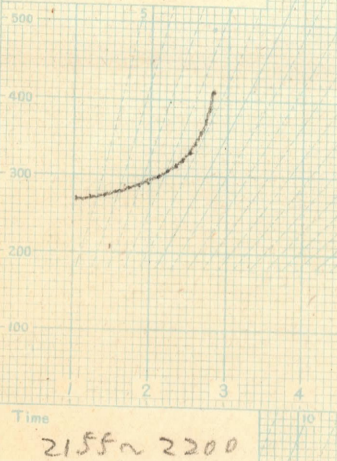
48.5

Observer T.O

f^0F_2	3.6
$h'F_2$	210
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	11.0
M_{3000}	3.0

VIRTUAL HEIGHT IN KM

Time 2100~2108



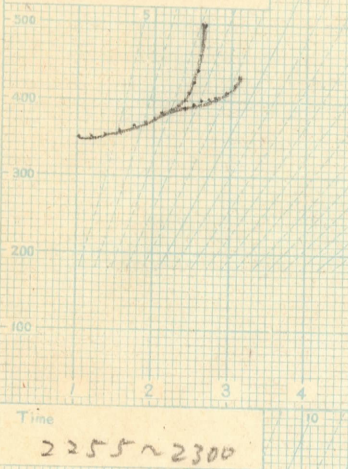
48.0

Observer T.O

f^0F_2	2.8
$h'F_2$	270
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	8.9
M_{3000}	3.1

VIRTUAL HEIGHT IN KM

Time 2155~2200



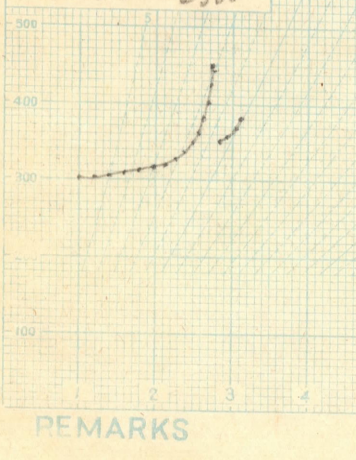
48.5

Observer T.O

f^0F_2	2.7
$h'F_2$	350
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	7.5
M_{3000}	2.7

VIRTUAL HEIGHT IN KM

Time 2255~2300



48.5

Observer T.O

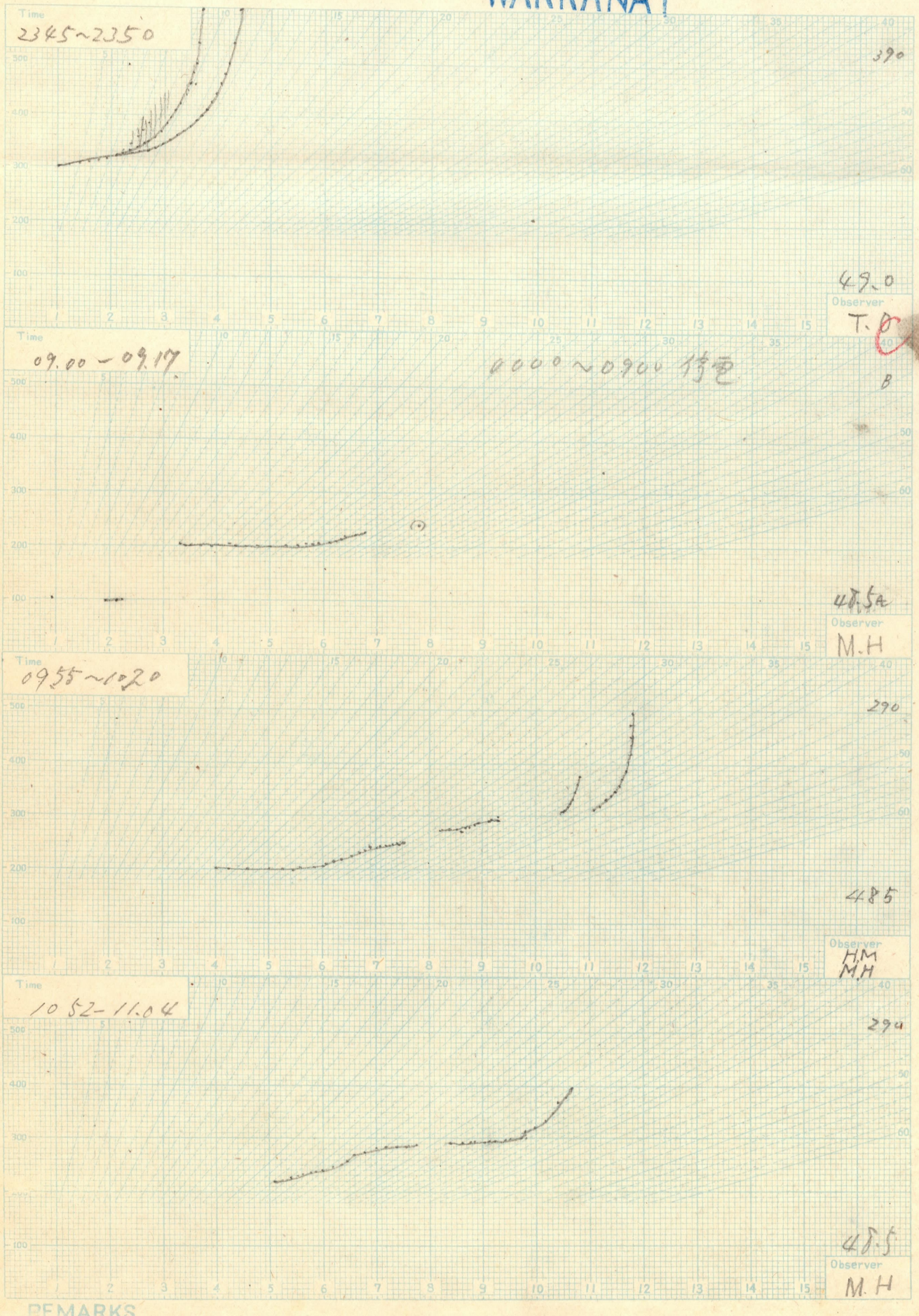
f^0F_2	2.7
$h'F_2$	300
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	8.4
M_{3000}	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb. 2nd 1949 STATION WAKKANAI NO 7214

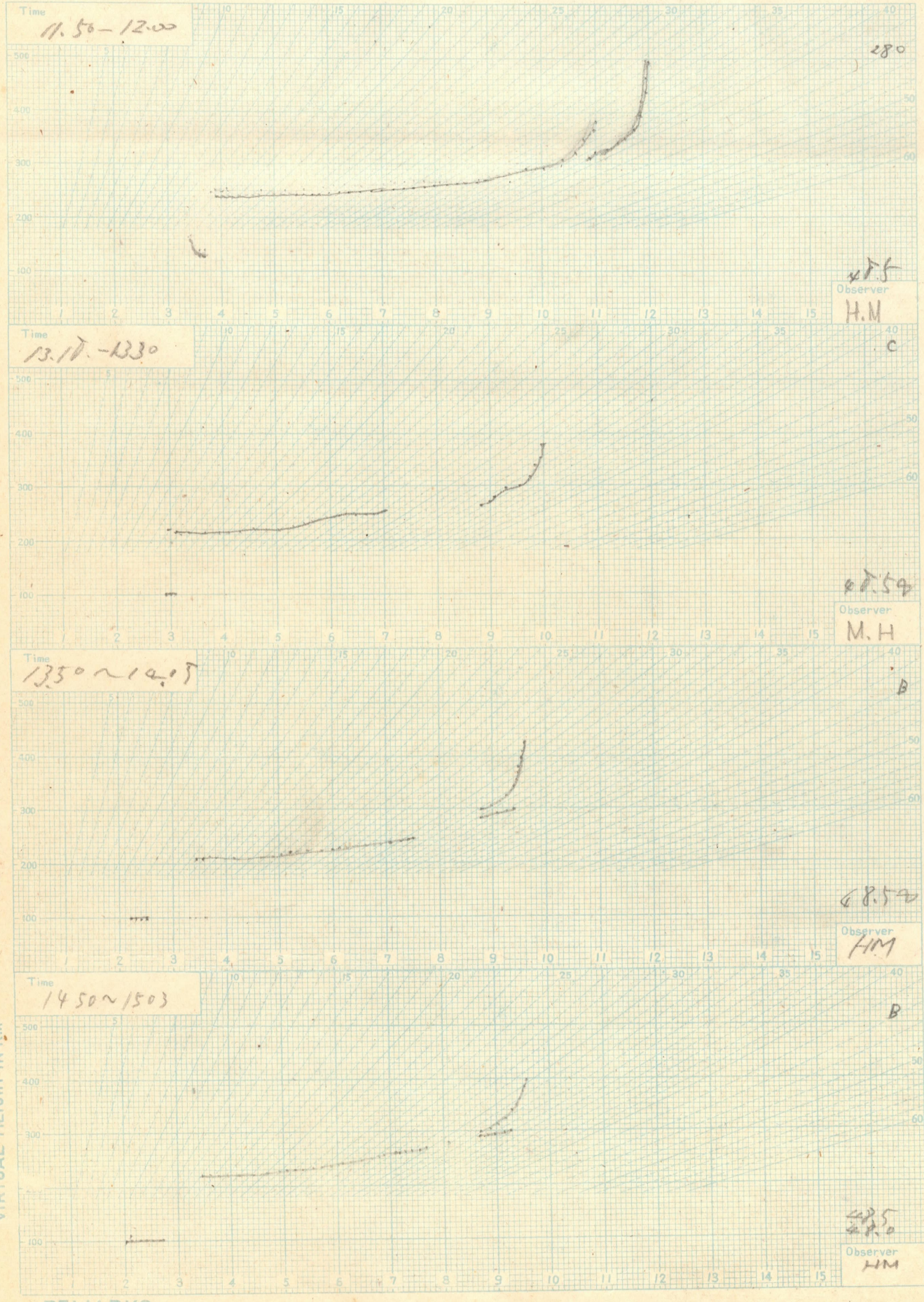


$f°F_2$	3.7
$h'F_2$	300
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	9.9
M_{3000}	2.6
	B
$h'F_2$	200
$f°F_1$	Q
$h'F_1$	Q
$f°E$	B
$h'E$	A
fE_s	B
ff_{min}	3.3
fE_{min}	1.9
3000 MUF	
M_{3000}	B
$f°F_2$	10.8
$h'F_2$	270
$f°F_1$	L
$h'F_1$	200
$f°E$	B
$h'E$	B
fE_s	B
ff_{min}	4.0
fE_{min}	B
3000 MUF	(38.0)
M_{3000}	(3.5)
$f°F_2$	10.8
$h'F_2$	280
$f°F_1$	L
$h'F_1$	220
$f°E$	B
$h'E$	B
fE_s	B
ff_{min}	5.1
fE_{min}	B
3000 MUF	35.5
M_{3000}	3.2

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB. 2nd 1949 STATION WAKKANAI NO 7215



$f°F_2$	11.1		
$h'F_2$	200		
$f°F_1$	0		
$h'F_1$	0		
$f°E$	(3.4)	B	
$h'E$	B		
fE_s	B		
fF_{min}	3.9		
fE_{min}	(3.4)		
3000 MUF	37.5		
M_{3000}	3.5		
$f°F_2$ [10.4]	C	10.0	
$h'F_2$ [250]	C	≥250	
$f°F_1$	C	2	
$h'F_1$	C	≥10	
$f°E$	C	B	
$h'E$	C	B	
fE_s	C	3.1	
fF_{min} [3.4]	C	3.1	
fE_{min} [3.1]	C	2.9	
3000 MUF		33.0	
M_{3000} [3.5]	C	3.5	
$f°F_2$	9.6		
$h'F_2$	210		
$f°F_1$	0		
$h'F_1$	0		
$f°E$	B		
$h'E$	A		
fE_s	B		
fF_{min}	3.4		
fE_{min}	2.2		
3000 MUF	32.5		
M_{3000}	3.3		
$f°F_2$	9.7		
$h'F_2$	≥20		
$f°F_1$	0		
$h'F_1$	0		
$f°E$	B		
$h'E$	A		
fE_s	B		
fF_{min}	2.0		
fE_{min}	3.5		
3000 MUF	32.0		
M_{3000}	3.3		

REMARKS

IONOSPHERIC RECORD

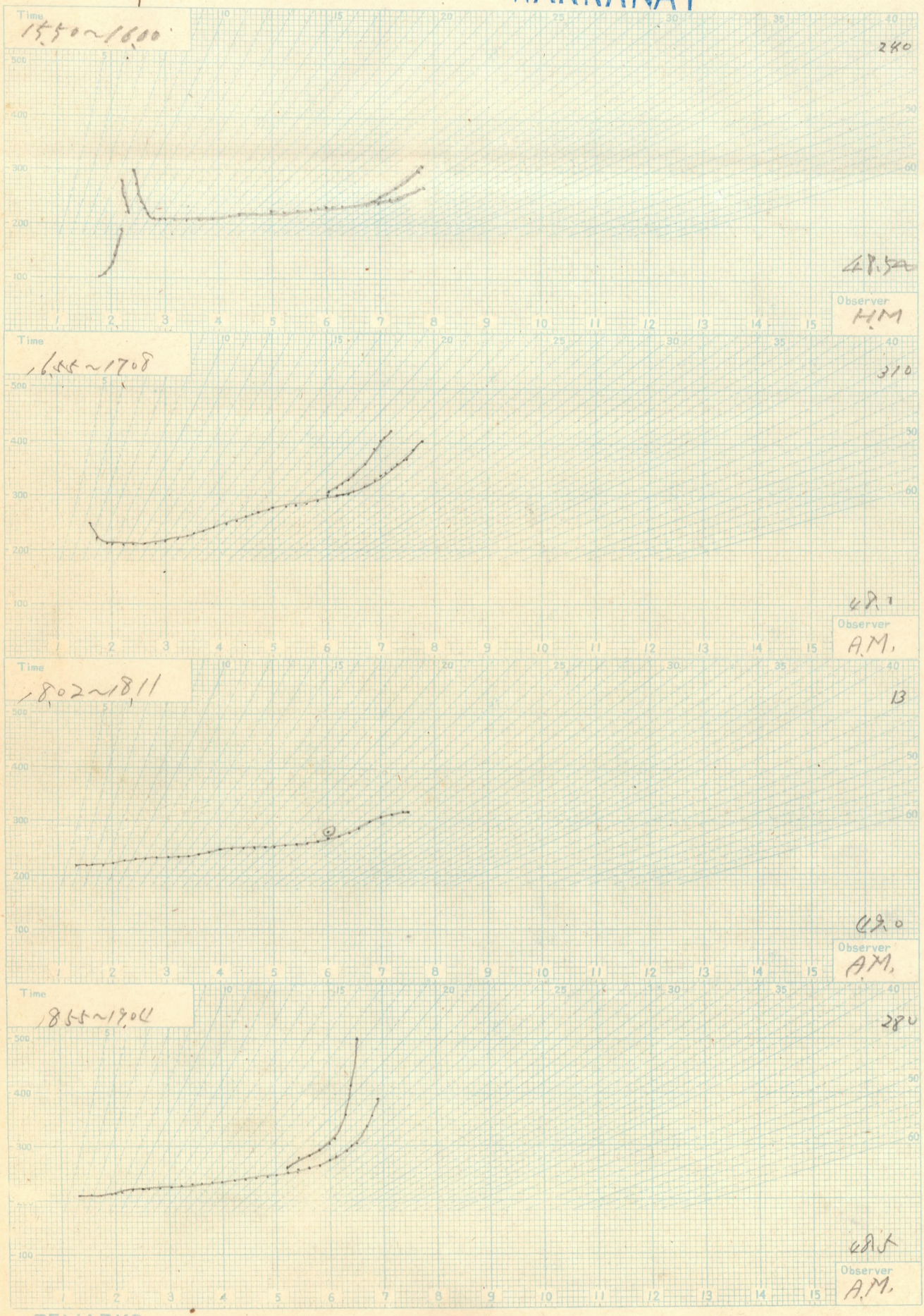
135°E MEAN TIME

DATE FEB. 2nd 1949

STATION WAKKANAI

NO 7216

VIRTUAL HEIGHT IN KM



$f°F_2$	8.1 P	7.4	B	6.5
$h'F_2$	210	210	220	210
$f°F_1$	0	0	0	
$h'F_1$	0	0	0	
$f°E$	2.2	(1.6)	E	
$h'E$	100	B	E	
fE_s	<fE	B	E	E
fF_{min}	2.2	1.6	1.3	1.3
fE_{min}	1.8	B	E	E
3000 MUF	28.0	22.1		21.9
M_{3000}	3.4 P	2.9 V	B	3.3

REMARKS

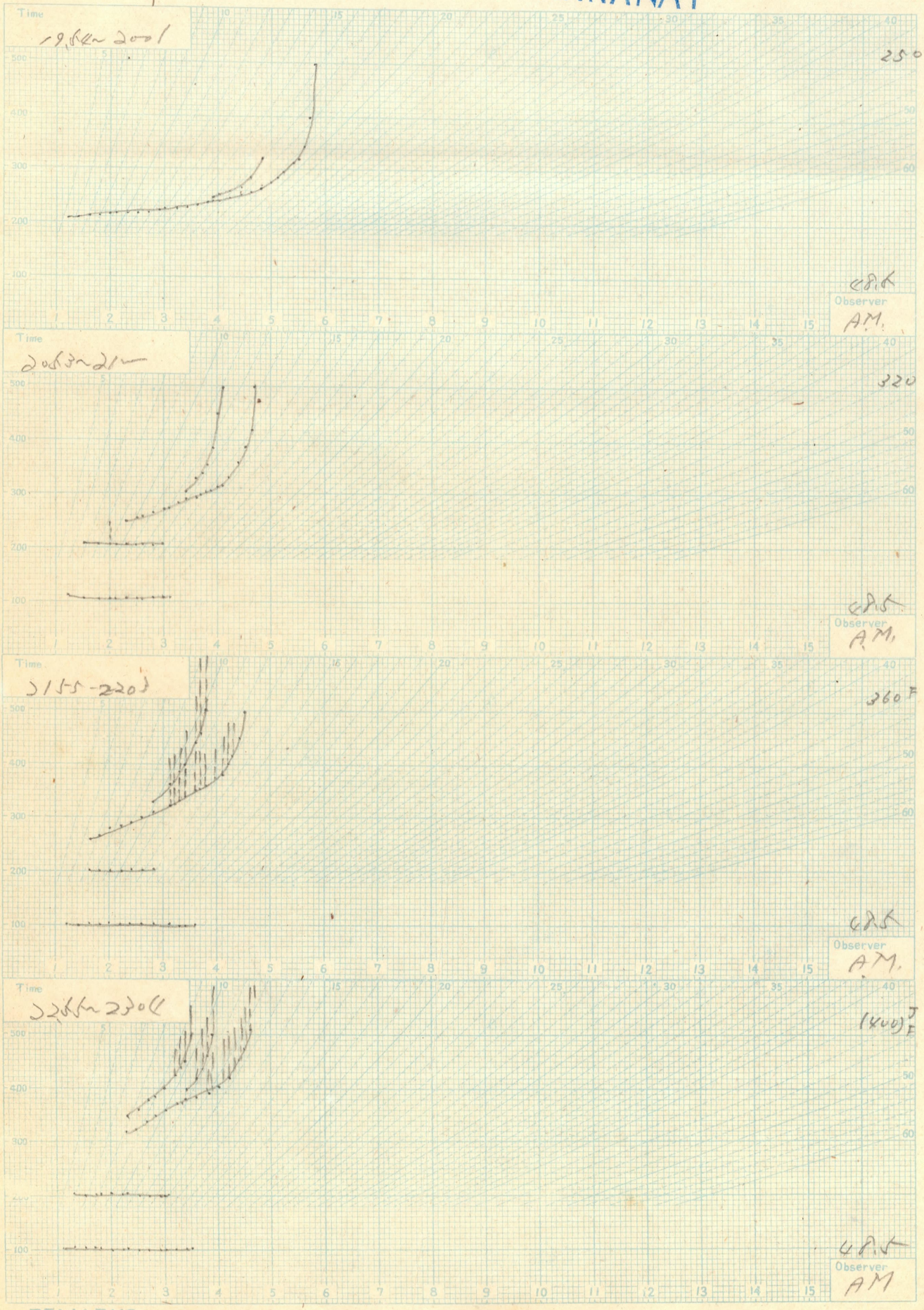
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 2nd 1949

STATION WAKKANAI

NO 7217



f^oF_2	4.9
$h'F_2$	210
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	17.4
M_{3000}	3.5

f^oF_2	4.1
$h'F_2$	(250) A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	3.1
fF_{min}	A
fE_{min}	1.2
3000 MUF	12.9
M_{3000}	3.1

f^oF_2	3.8 F
$h'F_2$	(260) A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	3.6
fF_{min}	A
fE_{min}	1.2
3000 MUF	10.6
M_{3000}	2.7 F

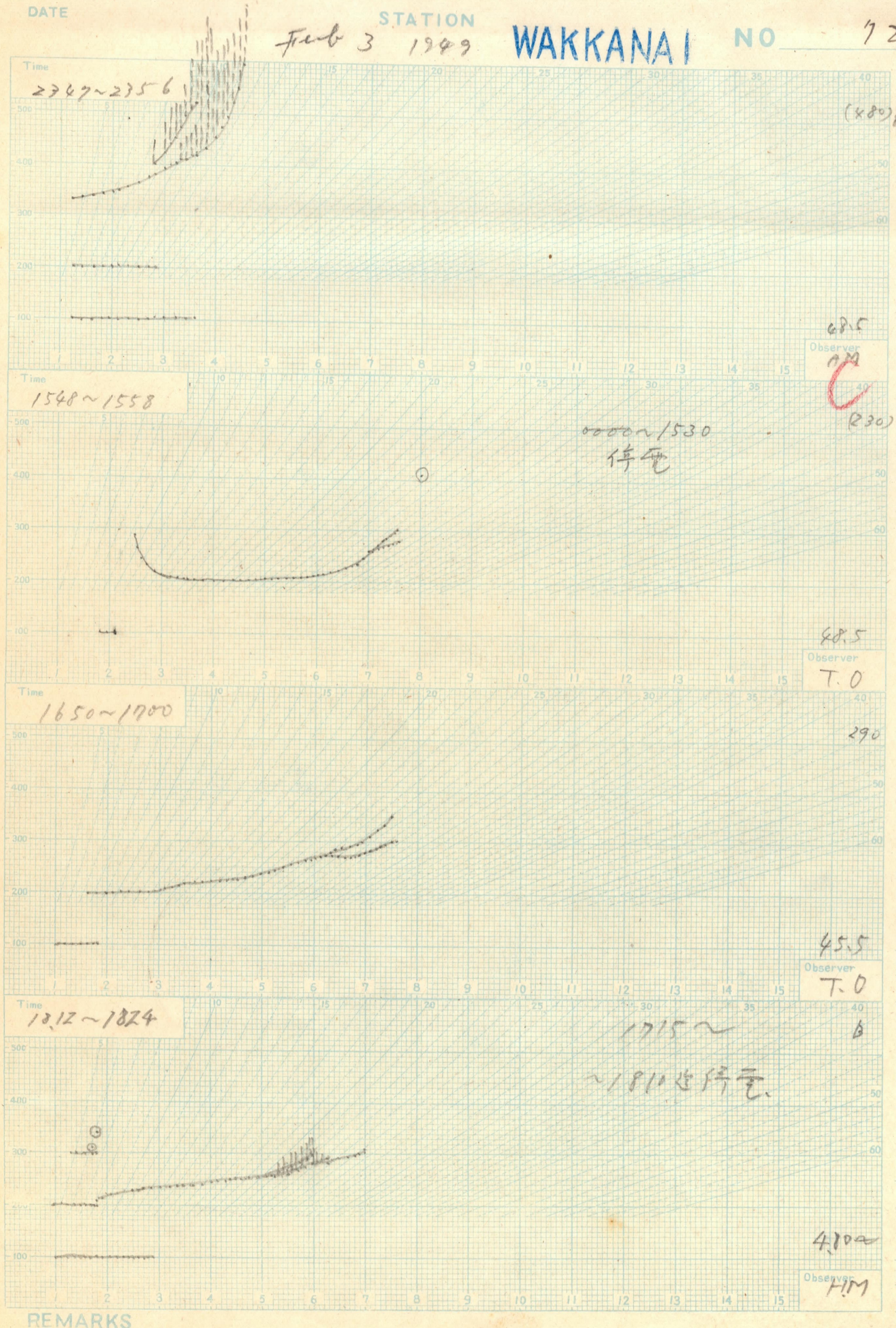
f^oF_2	4.0 J ~~3.6~~ F
$h'F_2$	A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	3.5
fF_{min}	A
fE_{min}	1.1
3000 MUF	(~~7.8~~ ~~2.7~~ F)
M_{3000}	JF

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 3 1949 STATION WAKKANAI NO 7218



$f°F_2$	4.0 J (3.9) F
$h'F_2$	(4.80) J F 320
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	3.6
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	(9.5) (2.5) F J F
M_{3000}	
$f°F_2$	(8.0)
$h'F_2$	200 (230)
$f°F_1$	0
$h'F_1$	0
$f°E$	(2.5)
$h'E$	(100)
fE_s	B
fF_{min}	2.5
fE_{min}	1.8
3000 MUF	28.0
M_{3000}	(3.5)
$f°F_2$	7.7
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	A
$h'E$	A
fE_s	1.8
fF_{min}	A
fE_{min}	E
3000 MUF	25.2
M_{3000}	3.2
$f°F_2$	B
$h'F_2$	(2.10) A
$f°F_1$	0
$h'F_1$	0
$f°E$	A
$h'E$	A
fE_s	2.9
fF_{min}	A
fE_{min}	E
3000 MUF	
M_{3000}	B

REMARKS

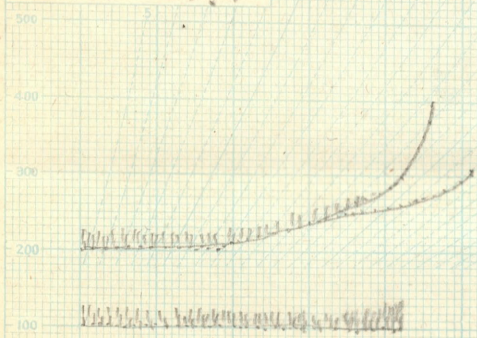
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 3rd 1964 STATION WAKKANAI NO 7219

VIRTUAL HEIGHT IN KM

Time 18.55 ~ 19.07



260

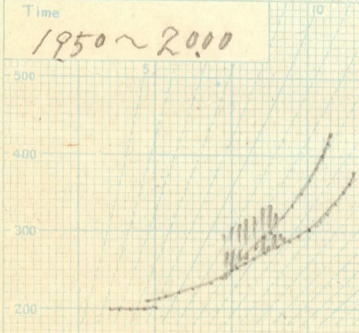
480

Observer HM

f^0F_2	5.6
$h'F_2$	200A
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	5.2F
ff_{min}	A
fE_{min}	E
3000 MUF	19.0
M_{3000}	3.4

VIRTUAL HEIGHT IN KM

Time 19.50 ~ 20.00



330

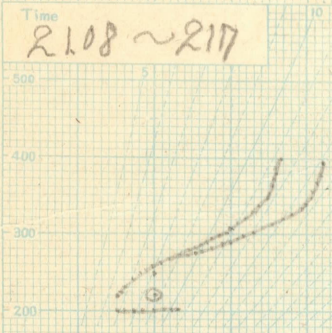
480

Observer HM

f^0F_2	4.4
$h'F_2$	210
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	2.3
ff_{min}	A
fE_{min}	E
3000 MUF	13.0 ~~17.0~~
M_{3000}	~~3.8~~ 2.9

VIRTUAL HEIGHT IN KM

Time 21.08 ~ 21.17



受信悪く連続観測

310

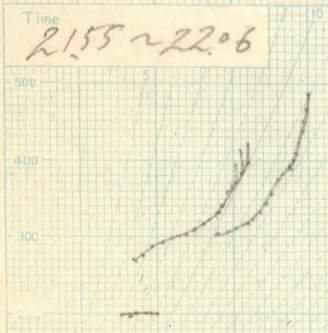
480

Observer HM

f^0F_2	3.7
$h'F_2$	A
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	2.6
ff_{min}	A
fE_{min}	1.3
3000 MUF	11.8
M_{3000}	3.1

VIRTUAL HEIGHT IN KM

Time 21.55 ~ 22.06



330F

480

Observer HM

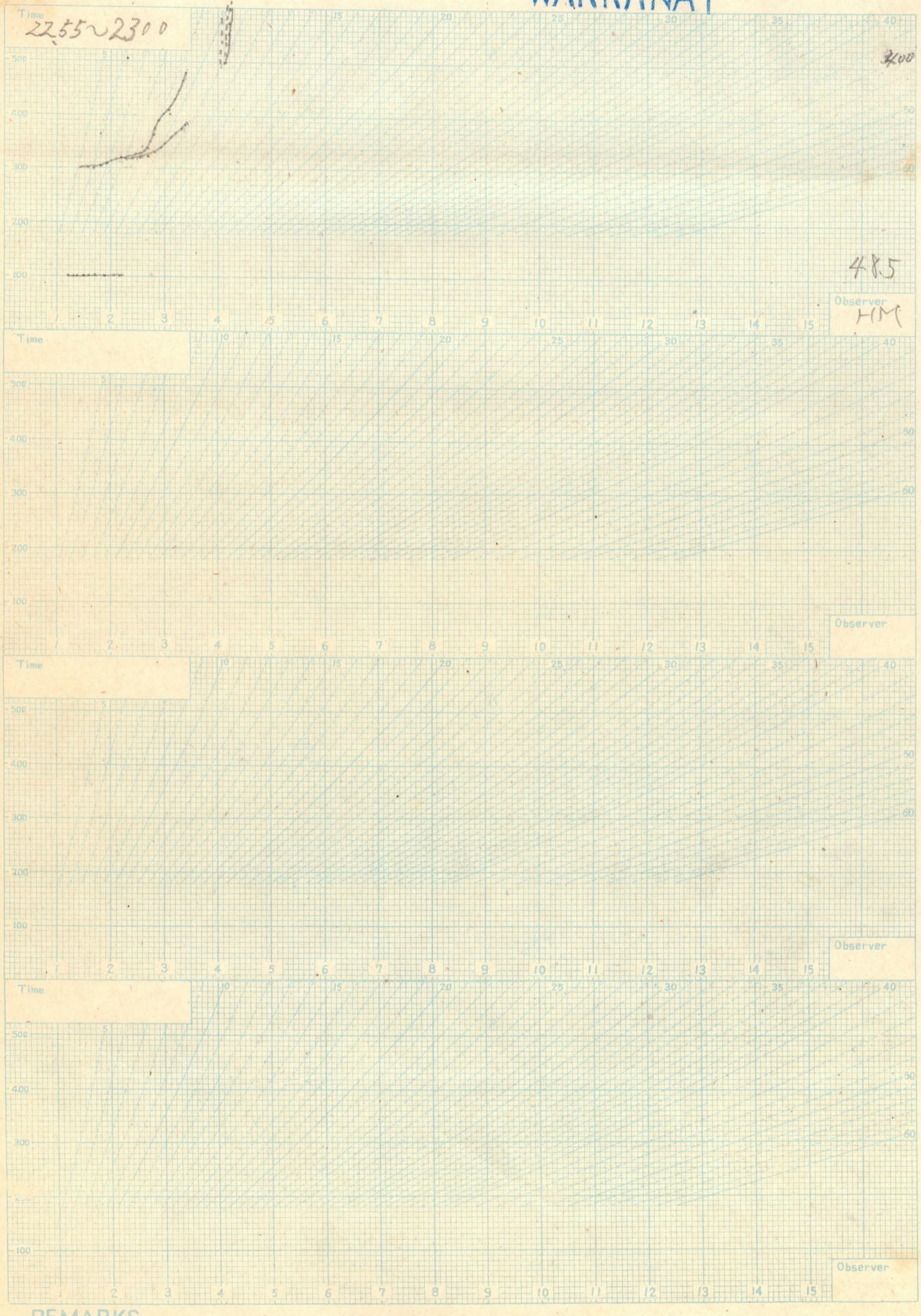
f^0F_2	3.3F
$h'F_2$	A
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	2.5
ff_{min}	A
fE_{min}	1.2
3000 MUF	10.0
M_{3000}	3.0 F

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 3rd 1962 STATION WAKKANAI NO 7220



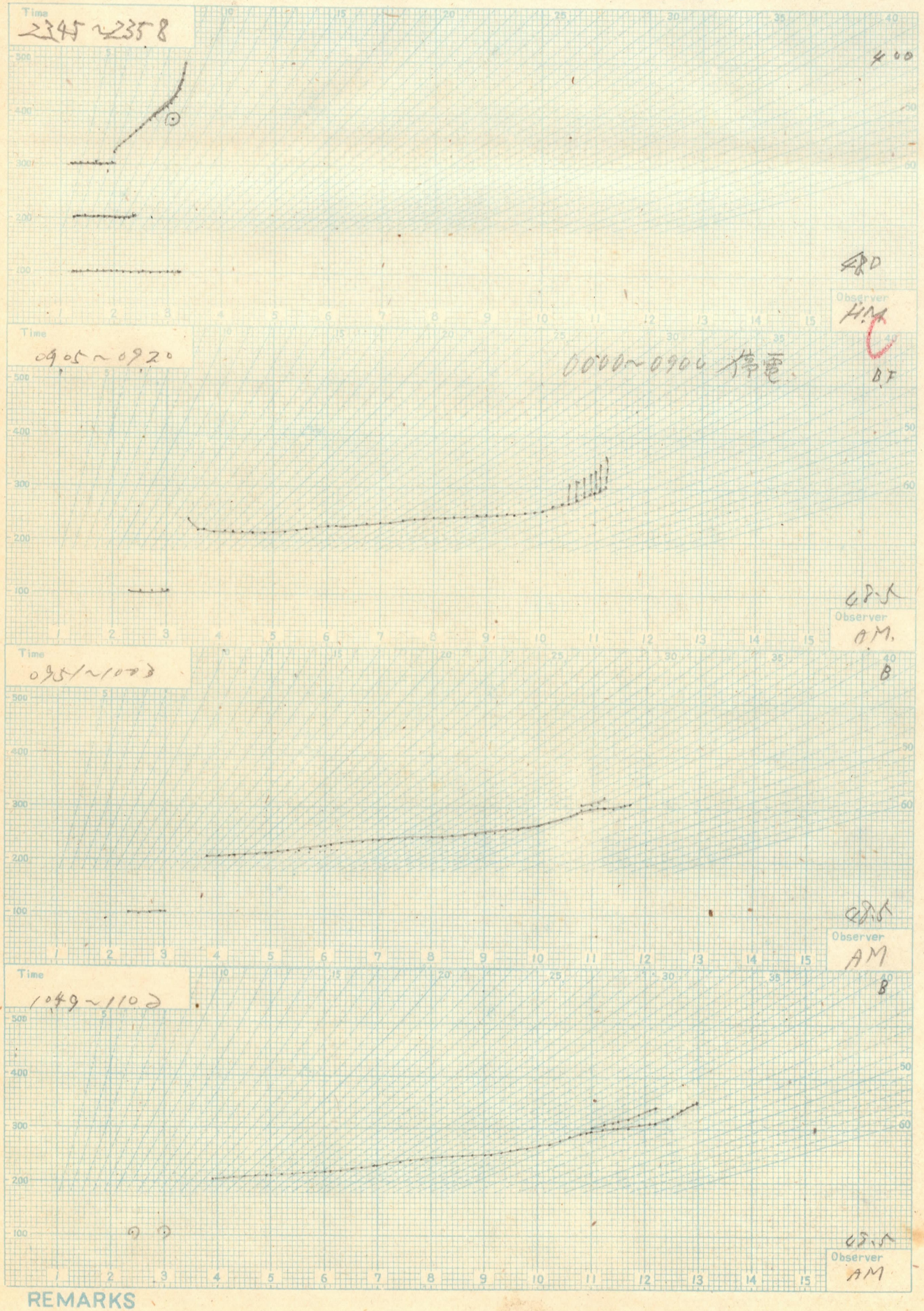
$f^{\circ}F_2$	3.5
$h'F_2$	300
$f^{\circ}F_1$	
$h'F_1$	
$f^{\circ}E$	
$h'E$	
fE_s	2.2
fF_{min}	A
fE_{min}	1.2
3000 MUF	9.5
M_{3000}	2.7

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 4th 1949. STATION WAKKANAI NO 1221



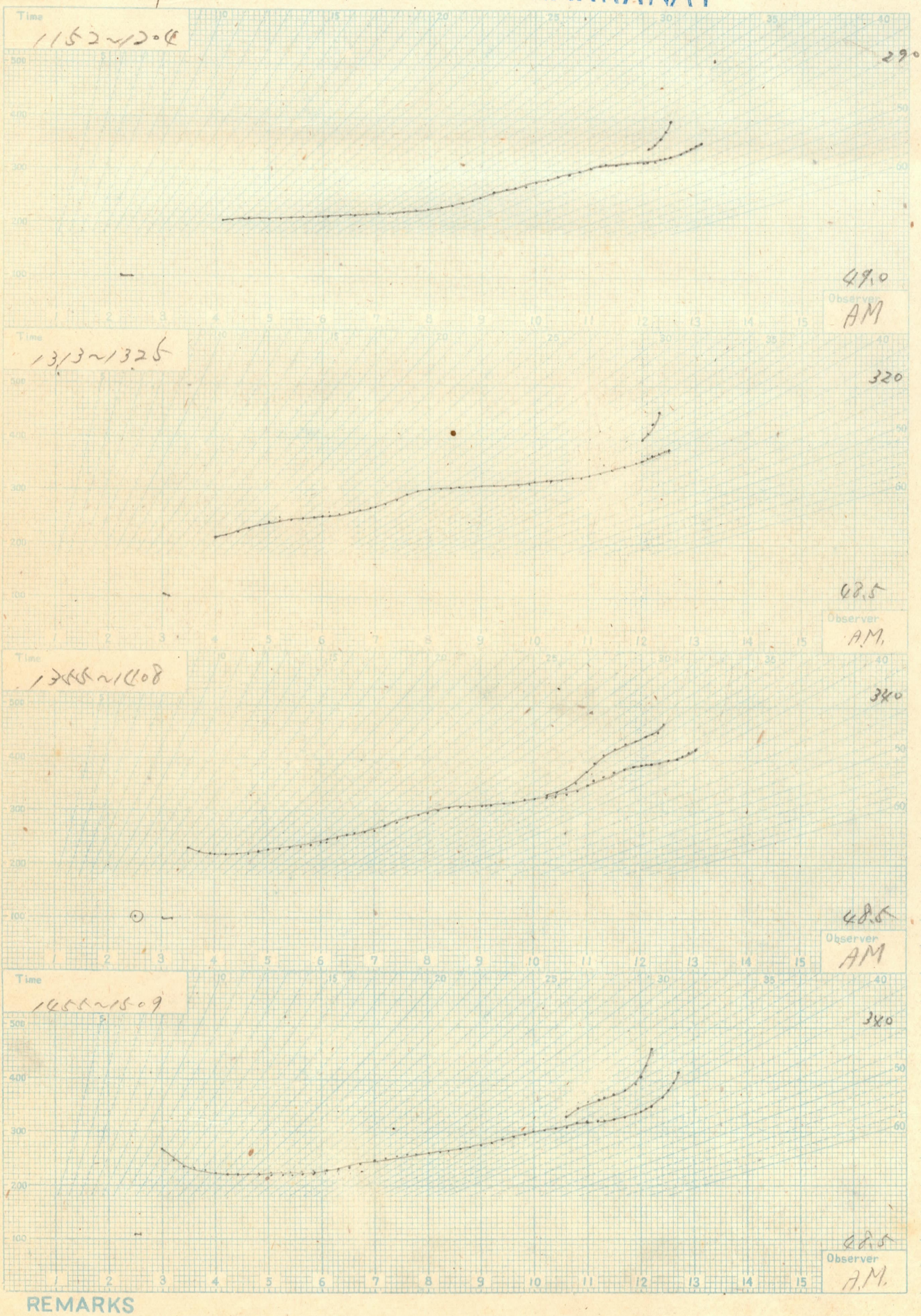
	2345~2358	0905~0920	0951~1003	1049~1102
$f°F_2$	3.3	BF	B	B
$h'F_2$	A	210	210	200
$f°F_1$		Ø	Ø	Ø
$h'F_1$		Ø	Ø	Ø
$f°E$		(3.3)B	B	B
$h'E$		(100)A	(100)A	B
fE_s	3.2	B	B	B
ff_{min}	A	3.4	3.8	3.9
fE_{min}	1.2	2.3	2.3	B
3000 MUF	9.2		1	
M_{3000}	2.7	BF	B	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 4 1949 STATION WAKKANAI NO 7222



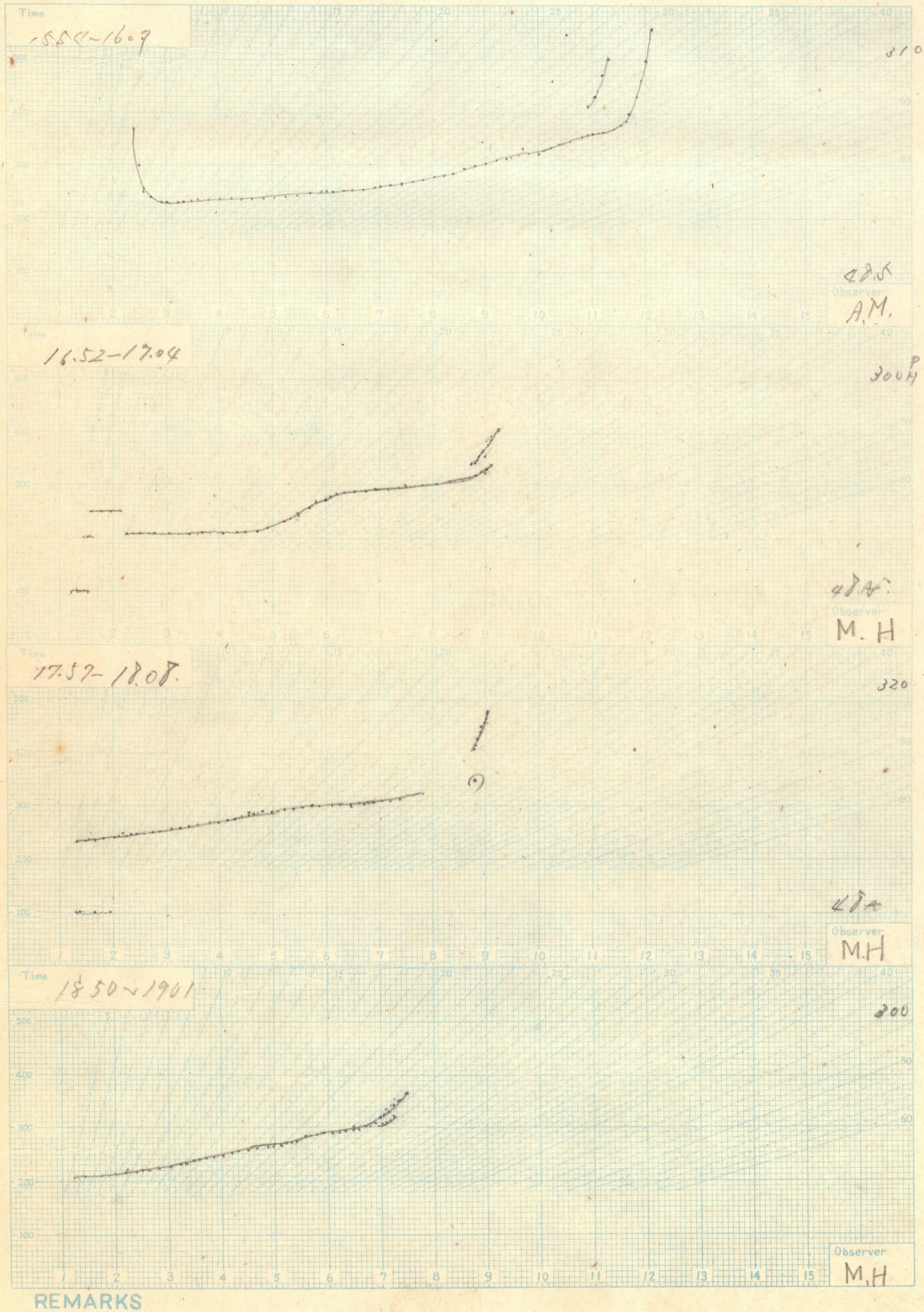
$f°F_2$	12.6	$f°F_2$	12.4	$f°F_2$	12.5	$f°F_2$	12.3
$h'F_2$	200	$h'F_2$	300	$h'F_2$	310	$h'F_2$	220
$f°F_1$	0	$f°F_1$	L L 2.4.0	$f°F_1$	Q L	$f°F_1$	0
$h'F_1$	0	$h'F_1$	210	$h'F_1$	Q 220	$h'F_1$	?
$f°E$	B	$f°E$	B	$f°E$	B	$f°E$	(3.0) B
$h'E$	B	$h'E$	B	$h'E$	A	$h'E$	(114) B
fE_s	B	fE_s	B	fE_s	B	fE_s	B
ff_{min}	4.1	ff_{min}	4.0	ff_{min}	2.5	ff_{min}	3.0
fE_{min}	(2.2)	fE_{min}	(3.0)	fE_{min}	3.0	fE_{min}	(2.5)
3000 MUF	41.0 ~~40.5~~	3000 MUF	34.0	3000 MUF	36.0	3000 MUF	37.1
M_{3000}	2.2 ~~2.2~~	M_{3000}	2.9	M_{3000}	2.8	M_{3000}	3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 4 1949 STATION WAKKANAI NO 7223



$f°F_2$	11.3	$f°F_2$	9.5 PH
$h'F_2$	230	$h'F_2$	210H
$f°F_1$	Q	$f°F_1$	Q
$h'F_1$	Q	$h'F_1$	Q
$f°E$	2.4	$f°E$	B
$h'E$	B	$h'E$	B
fE_s	B	fE_s	B
ff_{min}	2.4	ff_{min}	(2.2)
fE_{min}	B	fE_{min}	1.2
3000 MUF	33.0	3000 MUF	29.9
M_{3000}	2.9	M_{3000}	3.1 PH

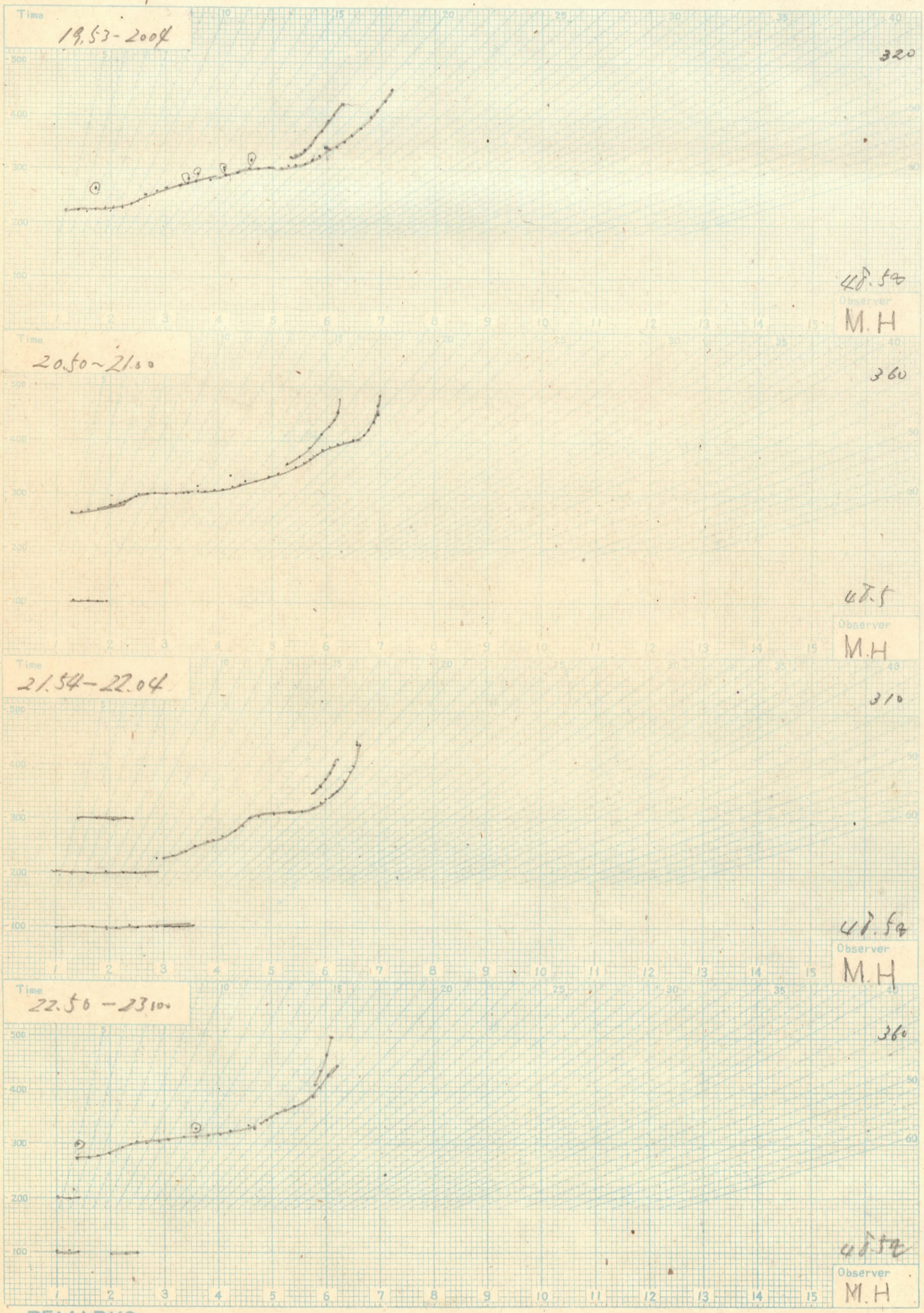
$f°F_2$	9.1	$f°F_2$	7.7
$h'F_2$	230	$h'F_2$	210
$f°F_1$	Q	$f°F_1$	
$h'F_1$	Q	$h'F_1$	
$f°E$	E	$f°E$	
$h'E$	E	$h'E$	
fE_s	1.9	fE_s	E
ff_{min}	1.3	ff_{min}	1.3
fE_{min}	1.3	fE_{min}	E
3000 MUF	29.0	3000 MUF	24.9
M_{3000}	2.9	M_{3000}	3.2

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 4 1949 STATION WAKKANAI NO 7224



f^0F_2	6.4	f^0F_2	6.3	f^0F_2	6.3	f^0F_2	6.1
$h'F_2$	220	$h'F_2$	260	$h'F_2$	(230)A	$h'F_2$	270
f^0F_1		f^0F_1		f^0F_1		f^0F_1	
$h'F_1$		$h'F_1$		$h'F_1$		$h'F_1$	
f^0E		f^0E		f^0E		f^0E	
$h'E$		$h'E$		$h'E$		$h'E$	
fE_s	E	fE_s	1.9	fE_s	3.6	fE_s	2.5
ff_{min}	1.1	ff_{min}	1.3	ff_{min}	A	ff_{min}	A
fE_{min}	E	fE_{min}	1.3	fE_{min}	E	fE_{min}	E
3000 MUF	19.0	3000 MUF	18.0	3000 MUF	19.3	3000 MUF	17.5
M_{3000}	2.9	M_{3000}	2.8	M_{3000}	3.0	M_{3000}	2.8

REMARKS

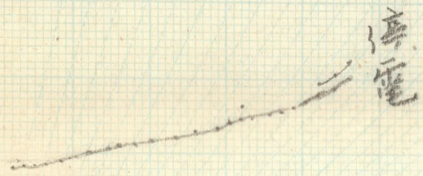
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 5 1949 STATION WAKKANAI NO 7225

VIRTUAL HEIGHT IN KM

Time 23.50-23.56



370 P

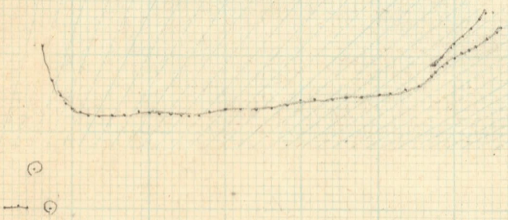
48.5

Observer M.H

f^0F_2	6.0 P
$h'F_2$	280
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_S	E
ff_{min}	1.2
fE_{min}	E
3000 MUF	16.8
M_{3000}	2.8 P

Time 1650~1701

2356~1630 停電



250

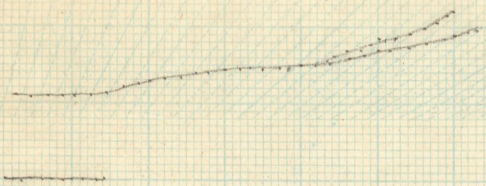
48.0A

Observer T.K

f^0F_2	7.5
$h'F_2$	220
f^0F_1	⊙
$h'F_1$	⊙
f^0E	1.6
$h'E$	(100)A
fE_S	(1.4)
ff_{min}	1.6
fE_{min}	1.1
3000 MUF	25.0
M_{3000}	3.3

Time 1748~1800

電圧変動大



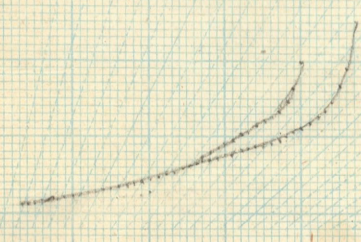
[280]C

48.0A

Observer T.K

f^0F_2	[6.3]C
$h'F_2$	210
f^0F_1	⊙
$h'F_1$	⊙
f^0E	E
$h'E$	E
fE_S	2.4
ff_{min}	A
fE_{min}	1.1
3000 MUF	
M_{3000}	[3.2]C

Time 1852~1900



300

48.0

Observer T.O

f^0F_2	5.0
$h'F_2$	210
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_S	2.4
ff_{min}	1.3
fE_{min}	E
3000 MUF	16.1
M_{3000}	3.2

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 5 1949 STATION WAKKANAI NO 7226

VIRTUAL HEIGHT IN KM

Time 1951~1959

320

48.0A

Observer TK

f^0F_2 3.7
$h'F_2$ 250
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 2.4
ff_{min} 1.2
fE_{min} E
3000 MUF 11.2
M_{3000} 3.0

Time 2052~2100

300

2120~7日/625 停電

吹雪ノタメ

48.0A

Observer TK

f^0F_2 3.5
$h'F_2$ 270
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 2.4
ff_{min} 1.3
fE_{min} E
3000 MUF 11.5
M_{3000} 3.2

Time

C

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
ff_{min}
fE_{min}
3000 MUF
M_{3000}

Time

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
ff_{min}
fE_{min}
3000 MUF
M_{3000}

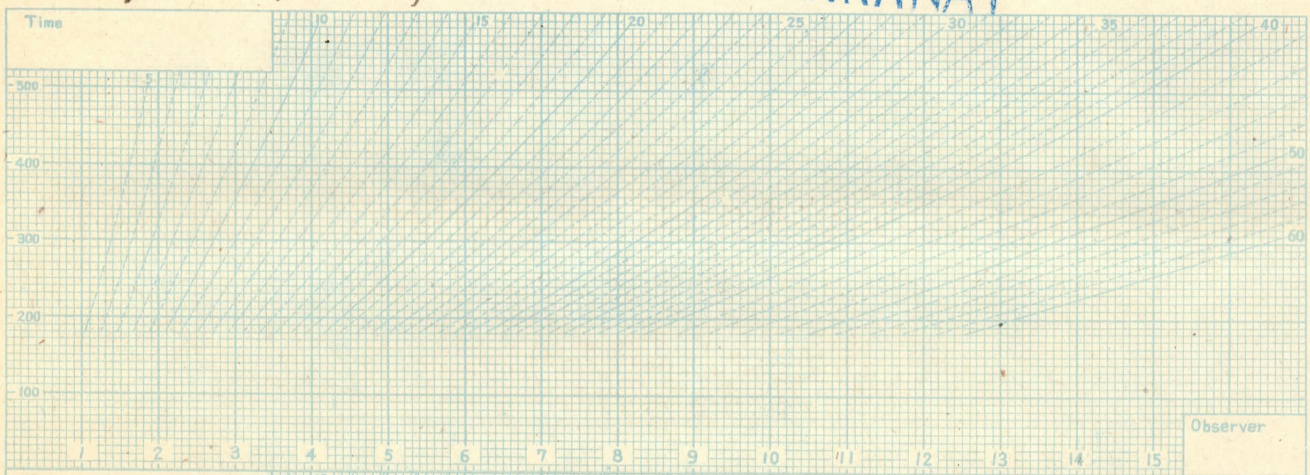
Observer

REMARKS

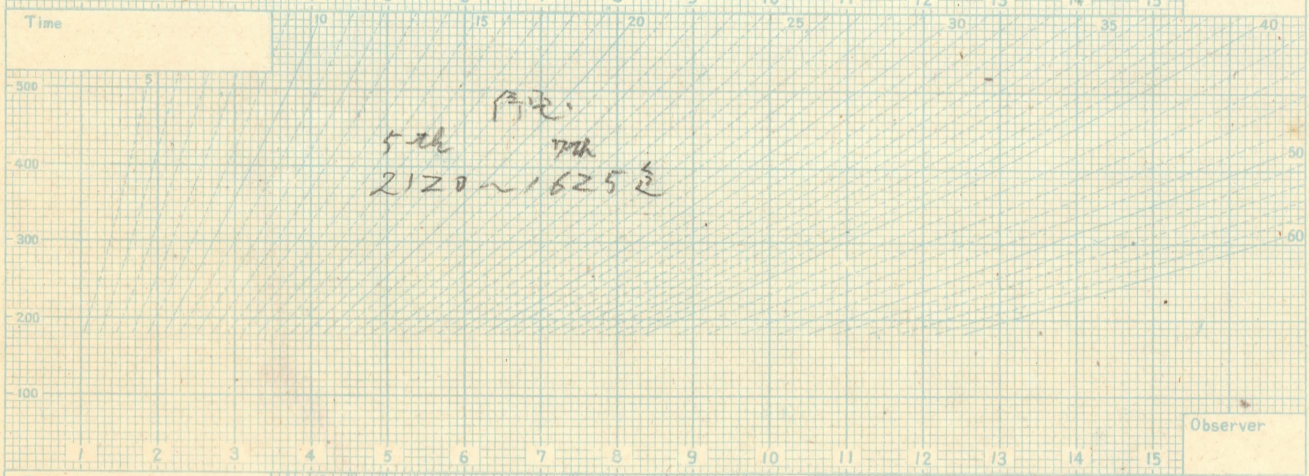
IONOSPHERIC RECORD

135°E MEAN TIME

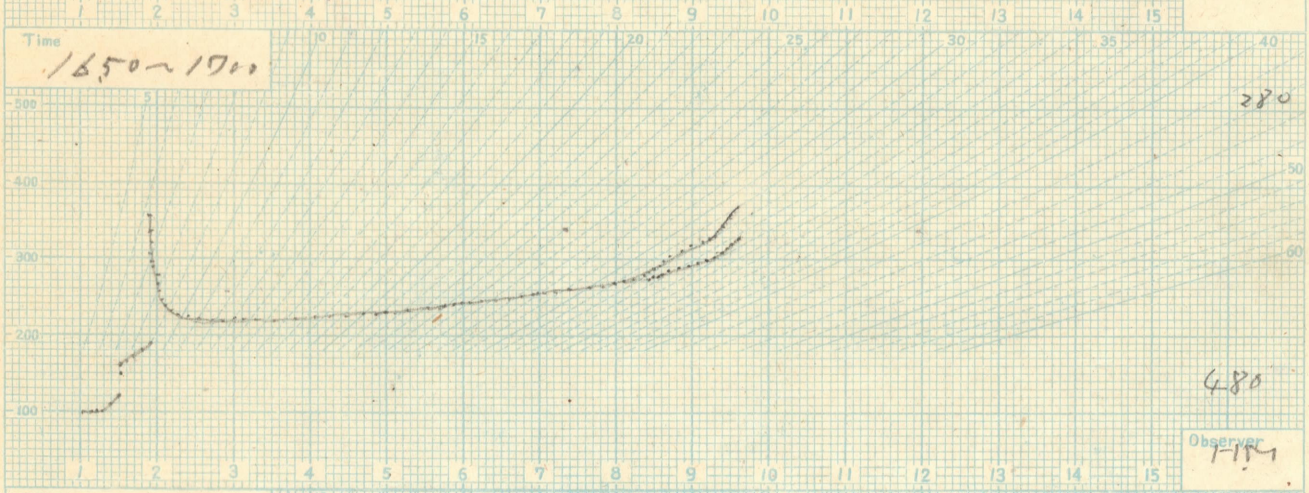
DATE feb 7 1949 STATION WAKKANAI NO 7227



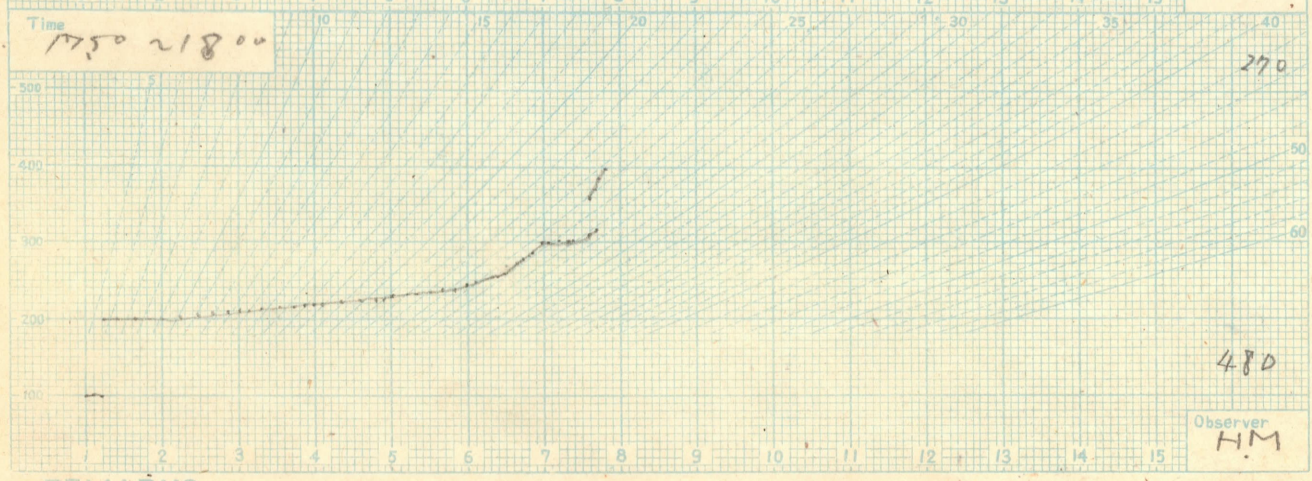
f^oF_2
$h'F_2$
f^oF_1
$h'F_1$
f^oE
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}



f^oF_2
$h'F_2$
f^oF_1
$h'F_1$
f^oE
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}



f^oF_2 9.9P
$h'F_2$ 220
f^oF_1 Q.
$h'F_1$ Q
f^oE 1.9
$h'E$ 100
fE_s <f_E
fF_{min} 1.9
fE_{min} E
3000 MUF 32.0
M_{3000} 3.2P



f^oF_2 8.0
$h'F_2$ 200
f^oF_1 Q
$h'F_1$ Q
f^oE A
$h'E$ A
fE_s 1.2
fF_{min} A 1.2
fE_{min} E
3000 MUF 26.0
M_{3000} 3.2

REMARKS

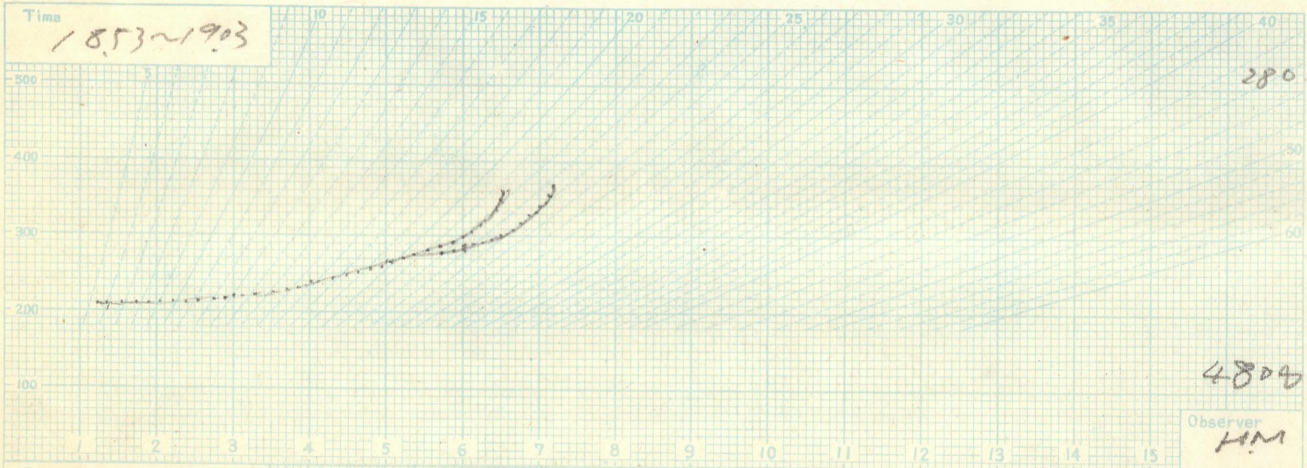
IONOSPHERIC RECORD

135°E MEAN TIME

DATE ~~Feb~~ 7 1949 STATION WAKKANAI NO 7228

VIRTUAL HEIGHT IN KM

Time 1853~1903



280

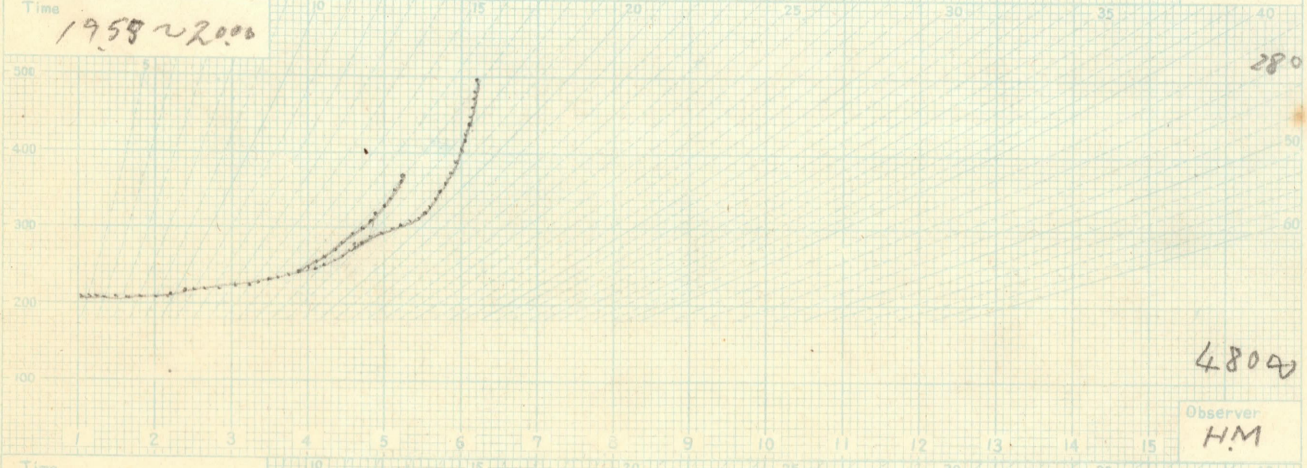
4800

Observer H.M

$f°F_2$	6.6
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	1.2
fE_{min}	E
3000 MUF	22.0
M_{3000}	3.3

VIRTUAL HEIGHT IN KM

Time 1958~2000



280

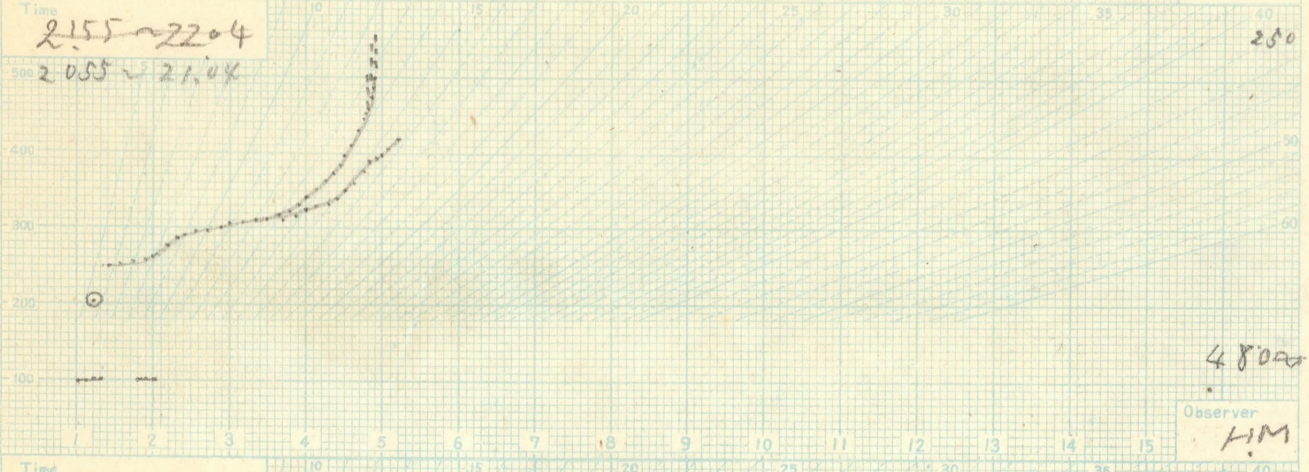
4800

Observer H.M

$f°F_2$	5.3
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	17.3
M_{3000}	3.2

VIRTUAL HEIGHT IN KM

Time ~~2155~2204~~ 2055~2104



280

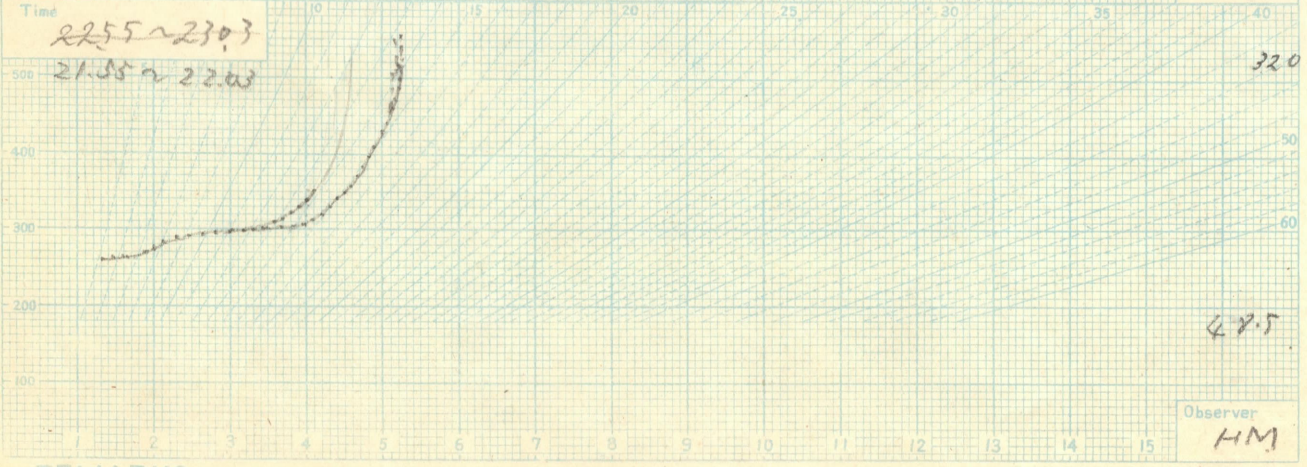
4800

Observer H.M

$f°F_2$	8.9
$h'F_2$	250
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
ff_{min}	1.4
fE_{min}	E
3000 MUF	14.0
M_{3000}	2.8

VIRTUAL HEIGHT IN KM

Time ~~2255~2303~~ 2155~2203



320

47.5

Observer HM

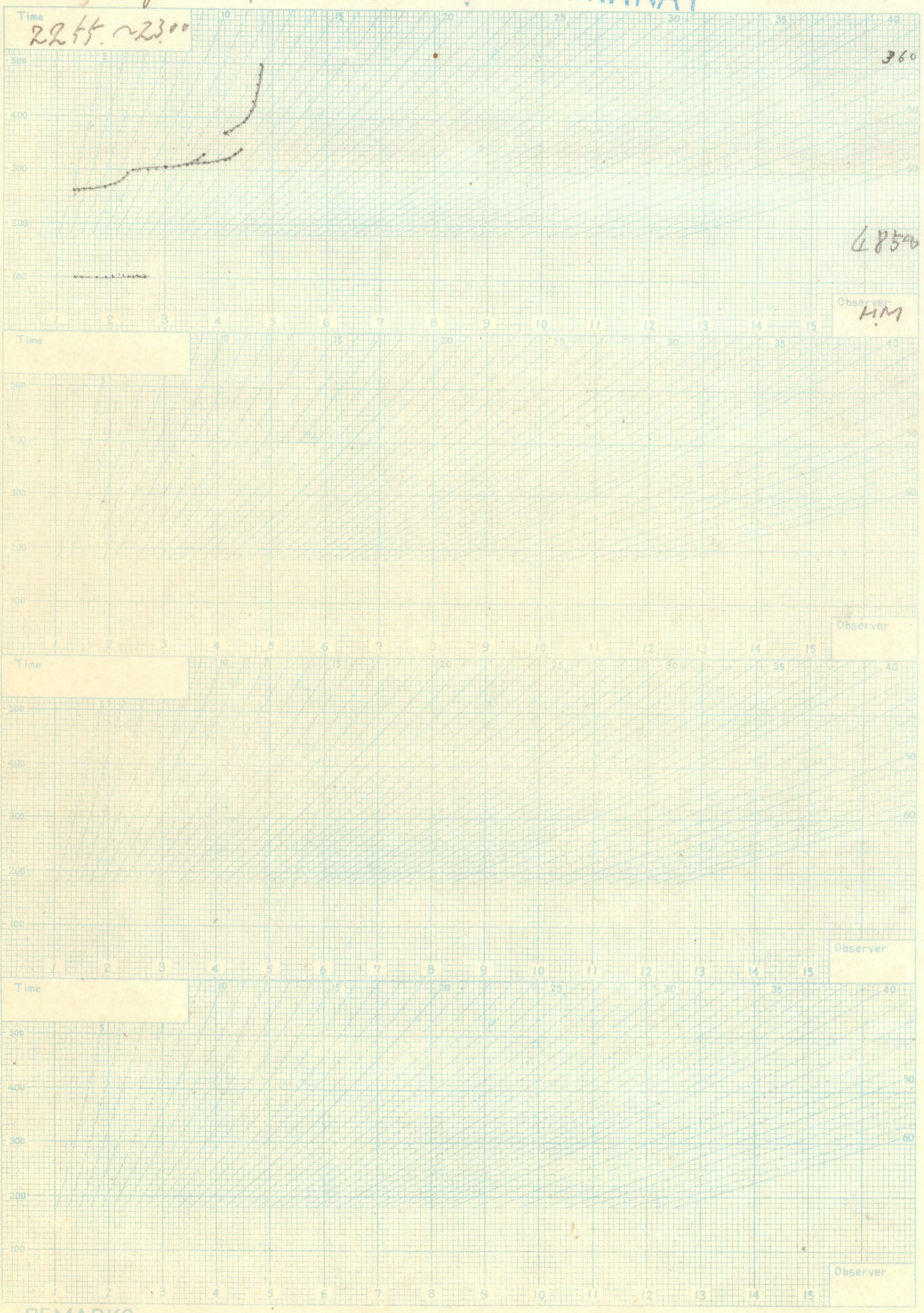
$f°F_2$	4.6
$h'F_2$	260
$f°F_1$	
$h'F_1$	
$f°E$	-
$h'E$	
fE_s	E
ff_{min}	1.3
fE_{min}	E
3000 MUF	13.9
M_{3000}	3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 7 1949 STATION WAKKANAI NO 7229



f^0F_2 4.84
$h'F_2$ 260 H
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 2.7
fF_{min} 1.3
fE_{min} 1.3
3000 MUF 18.0
M_{3000} 2.9 H

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

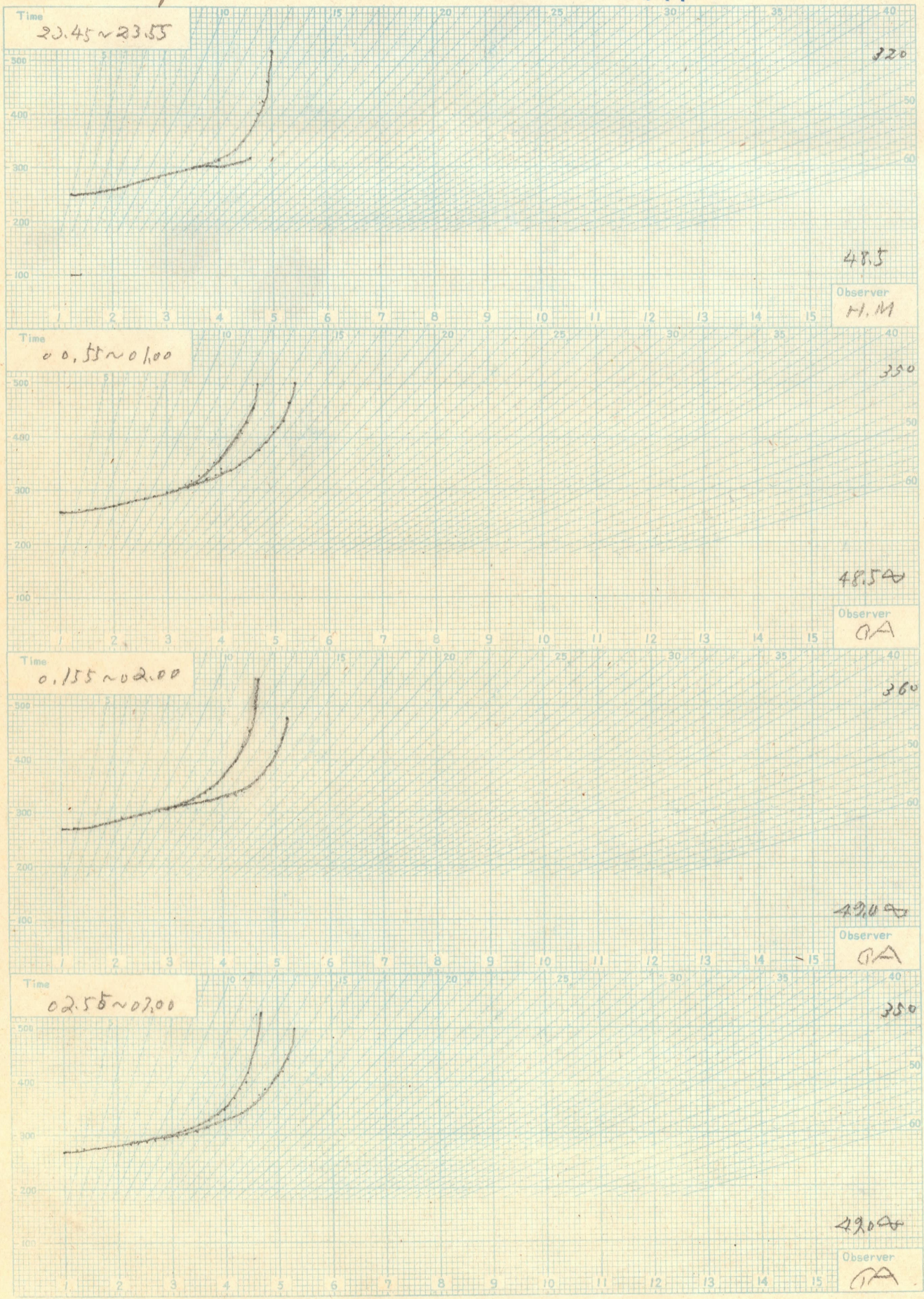
f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 8 1949 STATION WAKKANAI NO 7230



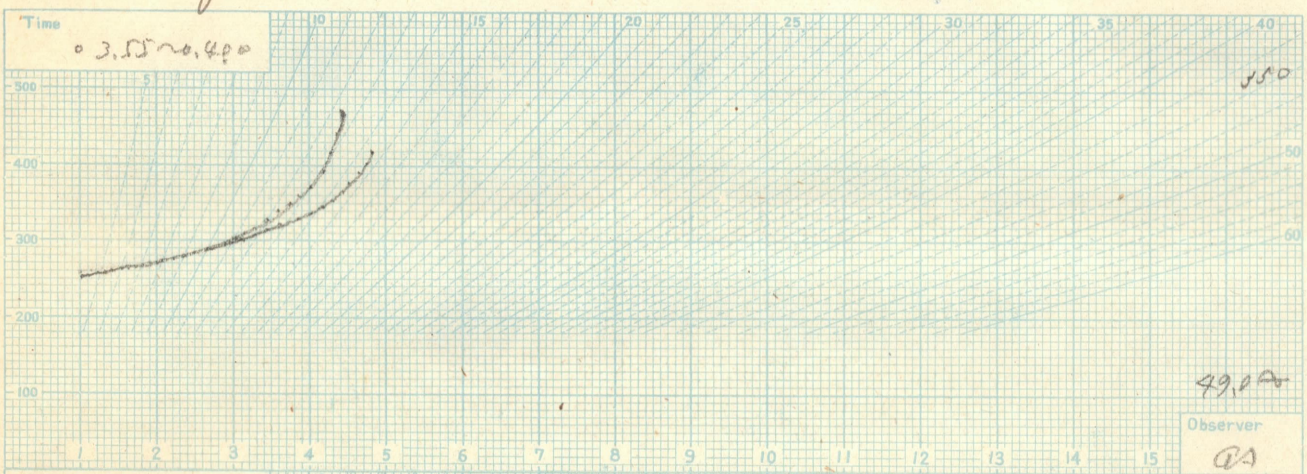
$f°F_2$	3.6	$f°F_2$	4.7	$f°F_2$	4.7	$f°F_2$	4.7
$h'F_2$	250	$h'F_2$	260	$h'F_2$	270	$h'F_2$	270
$f°F_1$		$f°F_1$		$f°F_1$		$f°F_1$	
$h'F_1$		$h'F_1$		$h'F_1$		$h'F_1$	
$f°E$		$f°E$		$f°E$		$f°E$	
$h'E$		$h'E$		$h'E$		$h'E$	
fE_s	1.4	fE_s	E	fE_s	E	fE_s	E
ff_{min}	1.2	ff_{min}	E	ff_{min}	E	ff_{min}	E
fE_{min}	1.2	fE_{min}	E	fE_{min}	E	fE_{min}	E
3000 MUF	15.0	3000 MUF	13.2	3000 MUF	13.1	3000 MUF	13.5
M_{3000}	3.0	M_{3000}	2.8	M_{3000}	2.7	M_{3000}	2.8

REMARKS

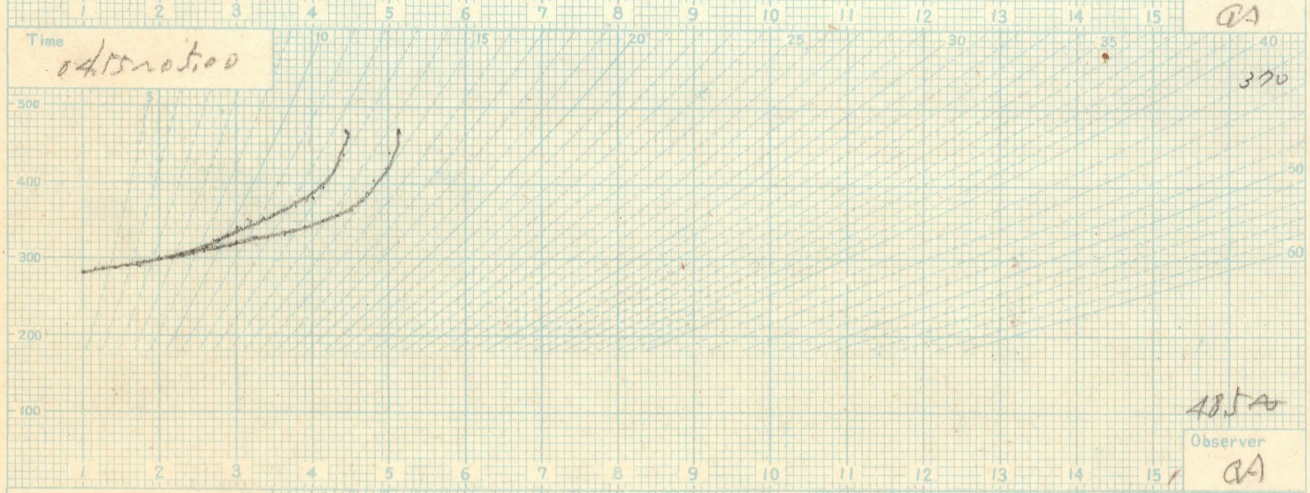
IONOSPHERIC RECORD

135°E MEAN TIME

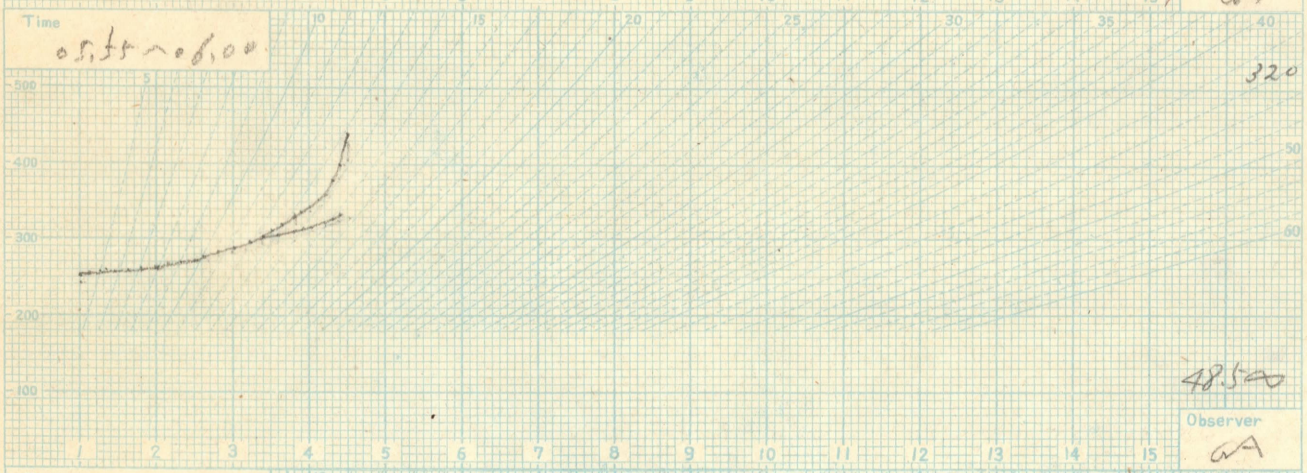
DATE feb 8 1949 STATION WAKKANAI NO 7231



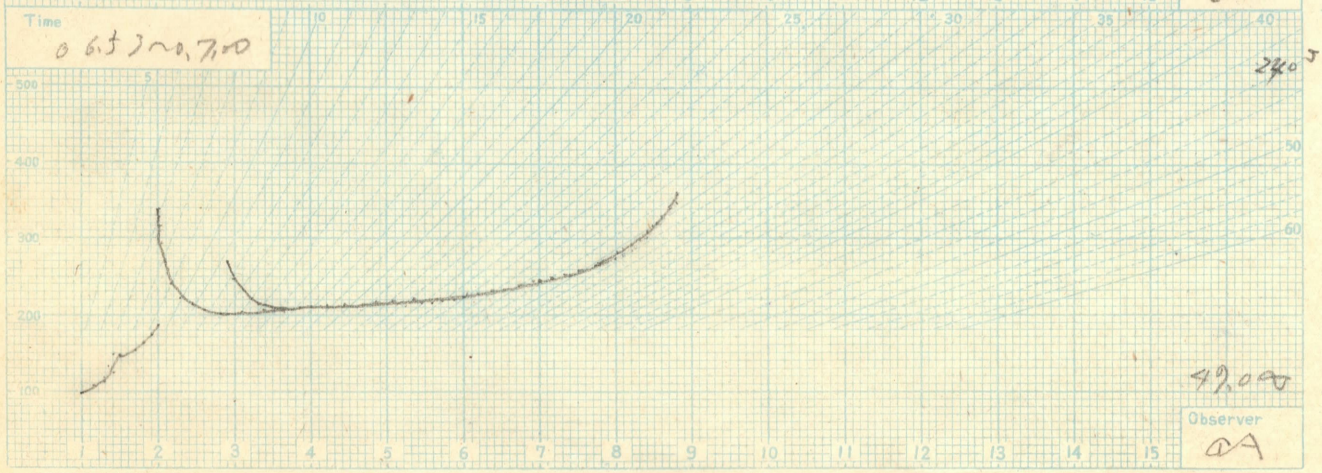
f^oF_2	4.5
$h'F_2$	250
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	13.0
M_{3000}	2.8



f^oF_2	4.5
$h'F_2$	280
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	13.0
M_{3000}	2.8



f^oF_2	4.5
$h'F_2$	250
f^oF_1	Q
$h'F_1$	Q
f^oE	E
$h'E$	E
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	13.9
M_{3000}	3.0



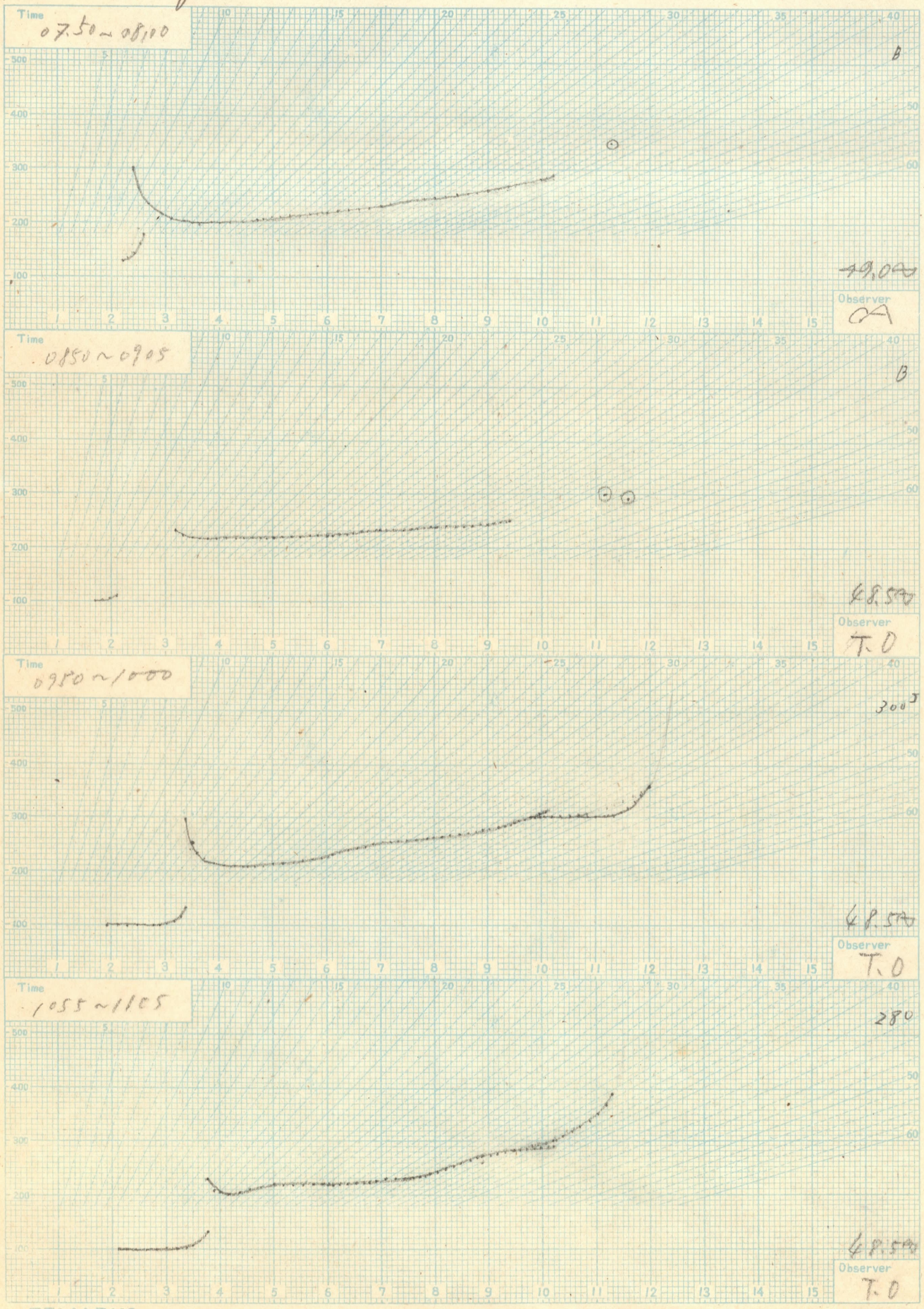
f^oF_2	8.2J
$h'F_2$	200
f^oF_1	Q
$h'F_1$	Q
f^oE	2.0H
$h'E$	100H
fE_s	<+E
fF_{min}	2.0
fE_{min}	E
3000 MUF	
M_{3000}	J

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 8 1949 STATION WAKKANAI NO 7232



$f°F_2$	B	$f°F_2$	B.	$f°F_2$	11.7 J	$f°F_2$	11.5
$h'F_2$	200	$h'F_2$	210	$h'F_2$	210	$h'F_2$	220
$f°F_1$	Q	$f°F_1$	Q	$f°F_1$	Q	$f°F_1$	L
$h'F_1$	Q	$h'F_1$	Q	$h'F_1$	Q	$h'F_1$	200
$f°E$	2.4	$f°E$	B	$f°E$	3.4	$f°E$	3.8
$h'E$	B	$h'E$	B	$h'E$	100	$h'E$	100
fE_s	<fE	fE_s	B	fE_s	<fE	fE_s	<fE
fF_{min}	2.4	fF_{min}	3.2	fF_{min}	3.4	fF_{min}	3.8
fE_{min}	2.2	fE_{min}	1.7	fE_{min}	1.9	fE_{min}	2.1
3000 MUF		3000 MUF		3000 MUF		3000 MUF	37.3
M_{3000}	B	M_{3000}	B	M_{3000}	J	M_{3000}	3.2

REMARKS

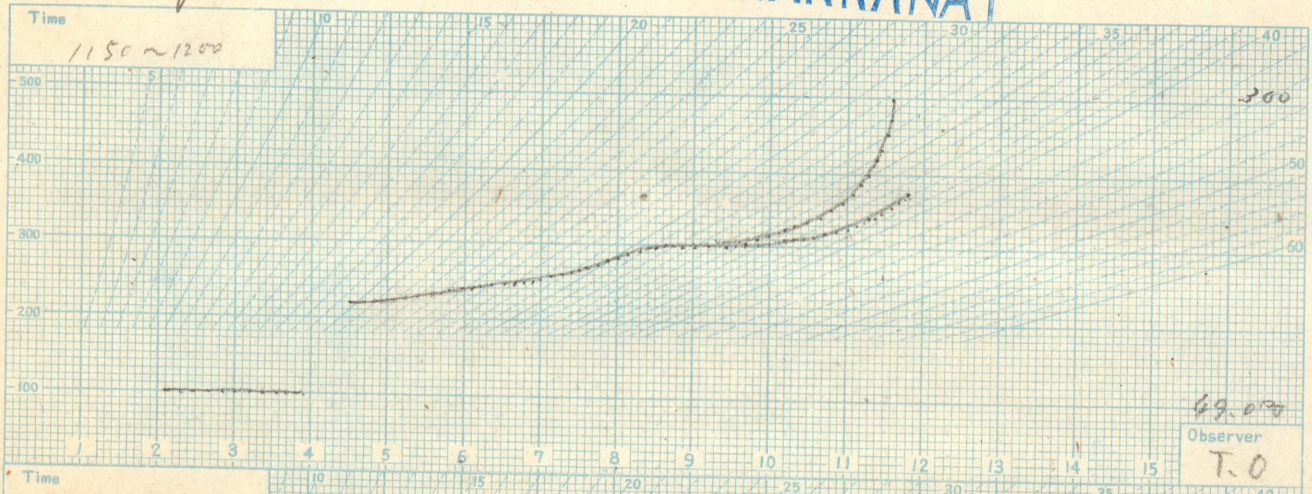
IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 8 1949 STATION WAKKANAI NO 7233

VIRTUAL HEIGHT IN KM

Time 1150~1200



300

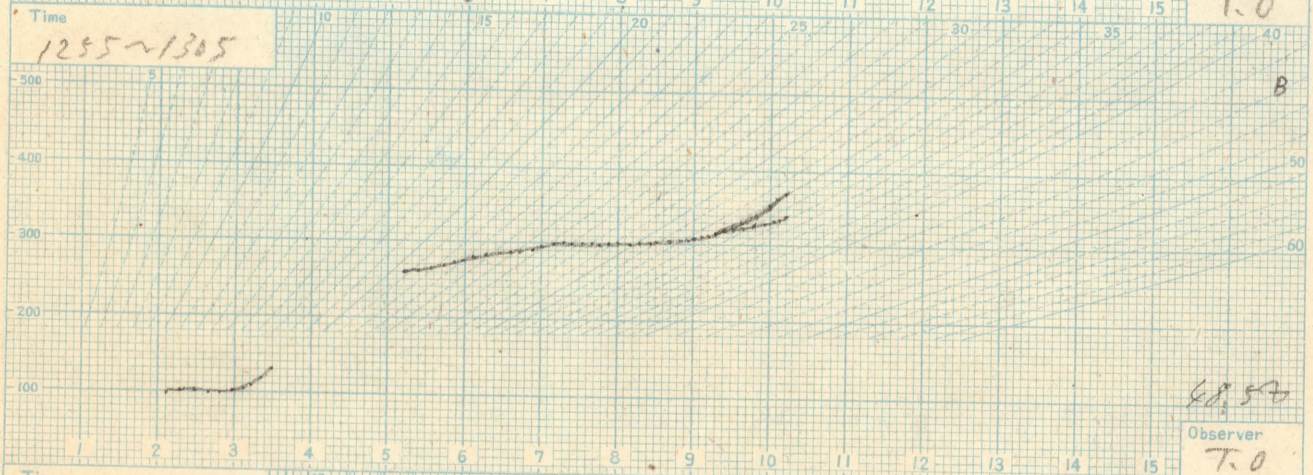
49.0

Observer T.O

$f°F_2$	11.6
$h'F_2$	220
$f°F_1$	Q
$h'F_1$	Q
$f°E$	A
$h'E$	A
fE_s	3.9
fF_{min}	4.5
fE_{min}	2.1
3000 MUF	36.0
M_{3000}	3.1

VIRTUAL HEIGHT IN KM

Time 1255~1305



B

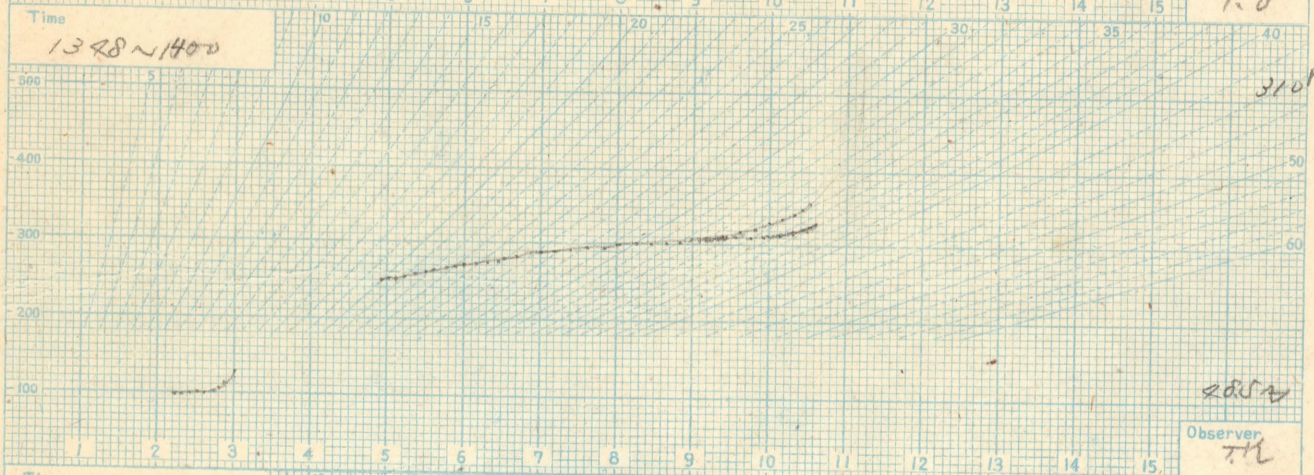
48.5

Observer T.O

$f°F_2$	B
$h'F_2$	260
$f°F_1$	B
$h'F_1$	B
$f°E$	3.5
$h'E$	100
fE_s	<fE
fF_{min}	5.2
fE_{min}	2.1
3000 MUF	
M_{3000}	B

VIRTUAL HEIGHT IN KM

Time 1358~1400



310P

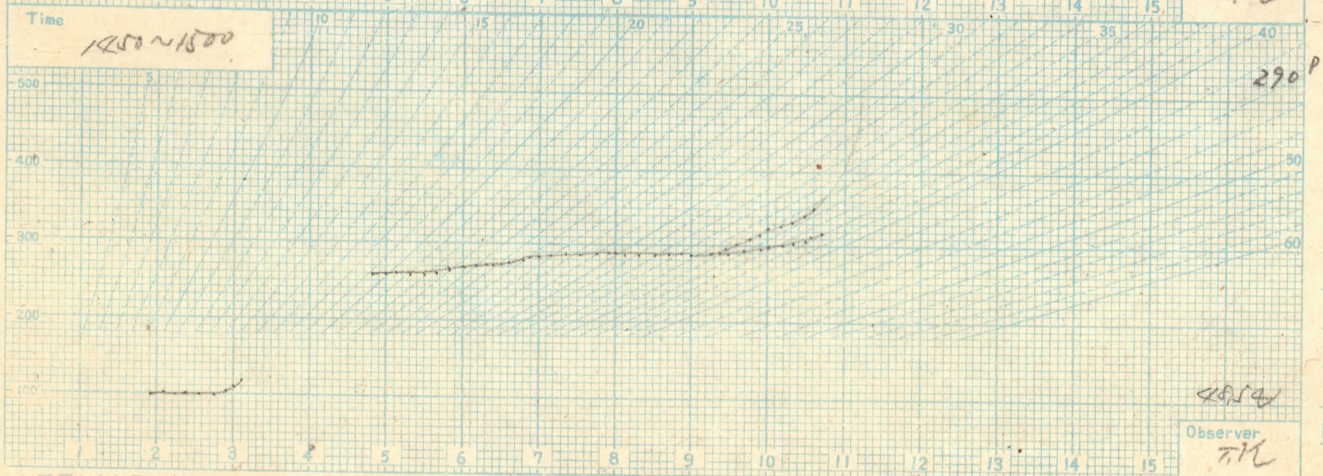
48.5

Observer T.K

$f°F_2$	11.2P
$h'F_2$	250
$f°F_1$	B
$h'F_1$	B
$f°E$	(3.0)
$h'E$	100
fE_s	<fE
fF_{min}	4.9
fE_{min}	2.2
3000 MUF	35.0
M_{3000}	3.1P

VIRTUAL HEIGHT IN KM

Time 1450~1500



290P

48.5

Observer T.K

$f°F_2$	11.2P
$h'F_2$	260
$f°F_1$	B
$h'F_1$	B
$f°E$	3.1
$h'E$	100
fE_s	<fE
fF_{min}	4.8
fE_{min}	1.9
3000 MUF	35.7
M_{3000}	3.1P

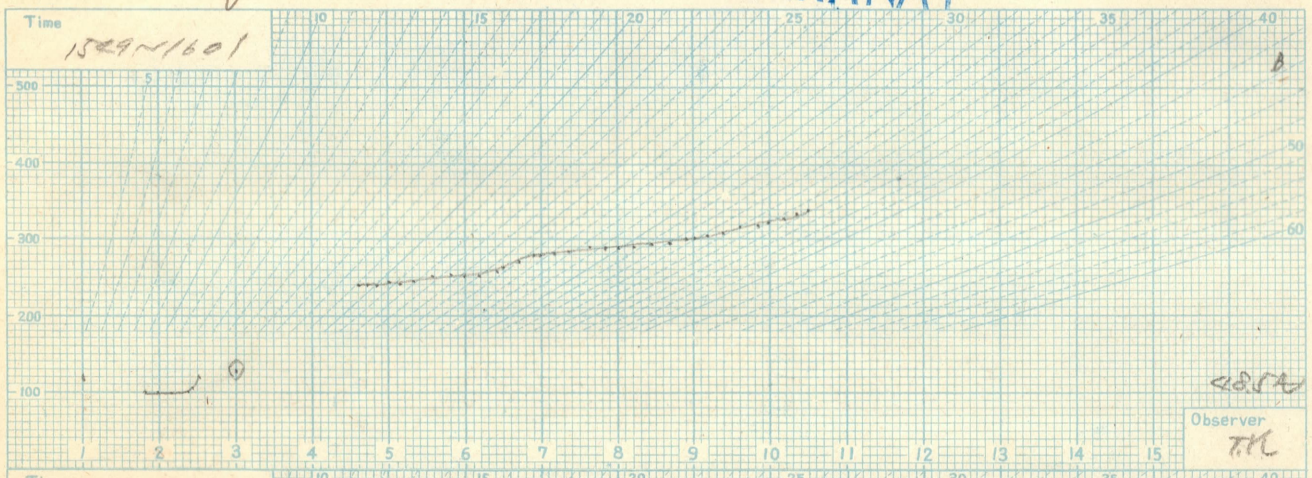
REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

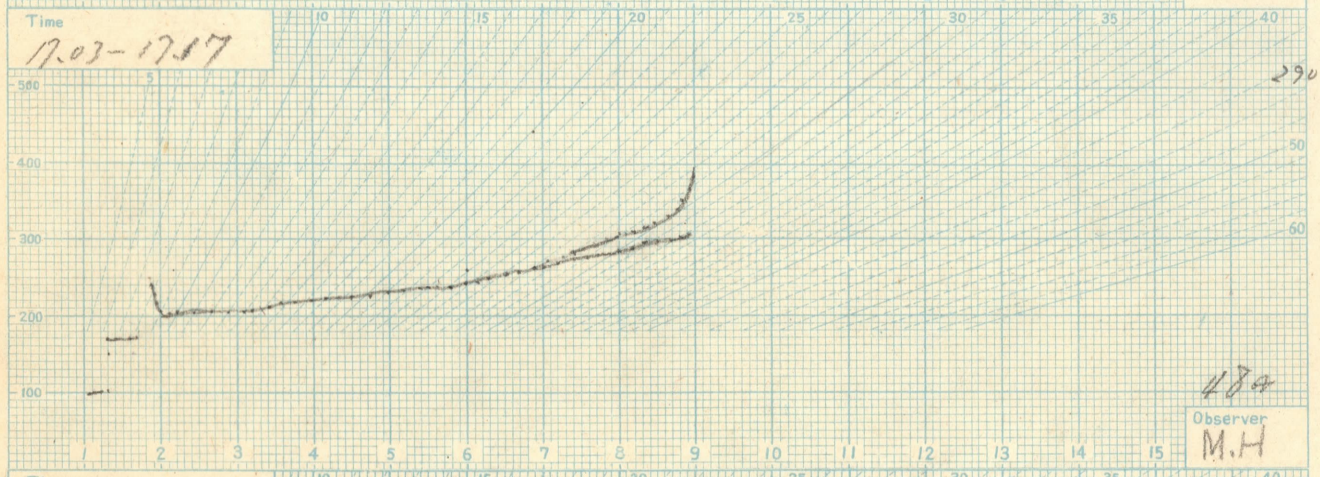
DATE feb 8 1949 STATION WAKKANAI NO 7234

VIRTUAL HEIGHT IN KM



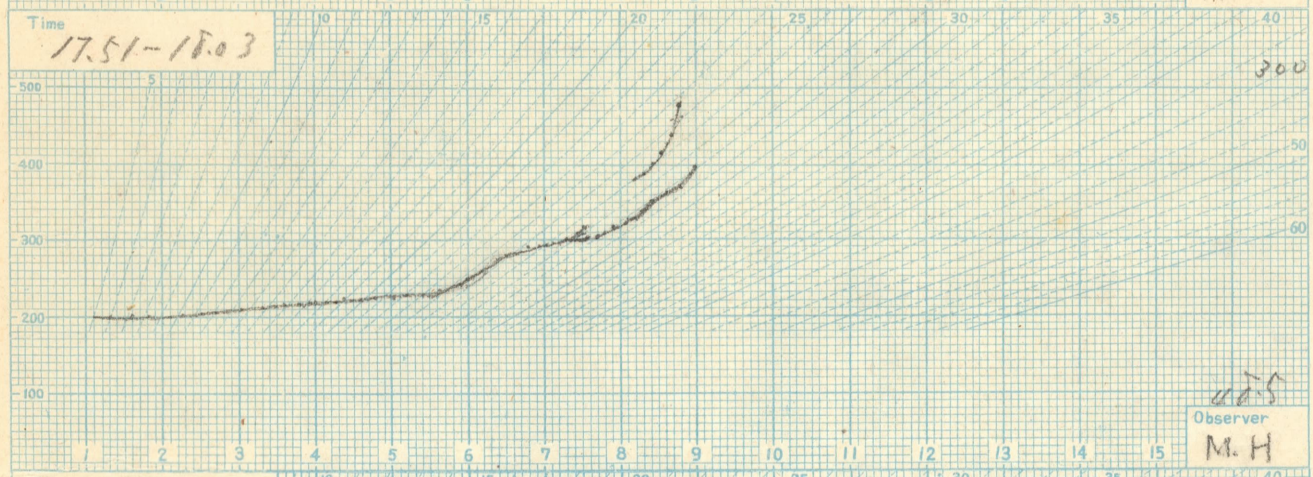
$f°F_2$ B
$h'F_2$ ≥40
$f°F_1$ B
$h'F_1$ B
$f°E$ 2.6 ~~1.8~~
$h'E$ 100
fE_s <fE
fF_{min} 4.6
fE_{min} 1.8
3000 MUF
M_{3000} B

VIRTUAL HEIGHT IN KM



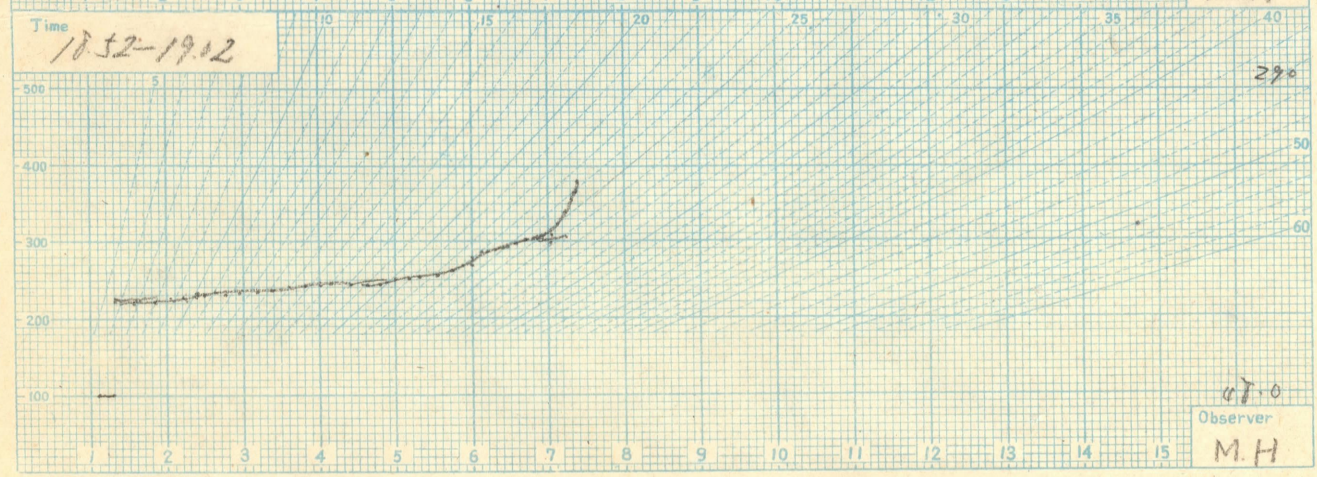
$f°F_2$ 9.0
$h'F_2$ ≥00
$f°F_1$ Q
$h'F_1$ Q
$f°E$ (1.9) B
$h'E$ (100) B
fE_s B
fF_{min} 1.9
fE_{min} 1.1
3000 MUF 30.0
M_{3000} 3.3

VIRTUAL HEIGHT IN KM



$f°F_2$ 8.8
$h'F_2$ ≥00
$f°F_1$ Q
$h'F_1$ Q
$f°E$ E
$h'E$ E
fE_s E
fF_{min} 1.1
fE_{min} E
3000 MUF ≥6.0
M_{3000} 2.9

VIRTUAL HEIGHT IN KM



$f°F_2$ 7.4
$h'F_2$ ≥20
$f°F_1$
$h'F_1$
$f°E$
$h'E$
fE_s 1.3
fF_{min} A
fE_{min} 1.1
3000 MUF ≥5.0
M_{3000} 3.3

REMARKS

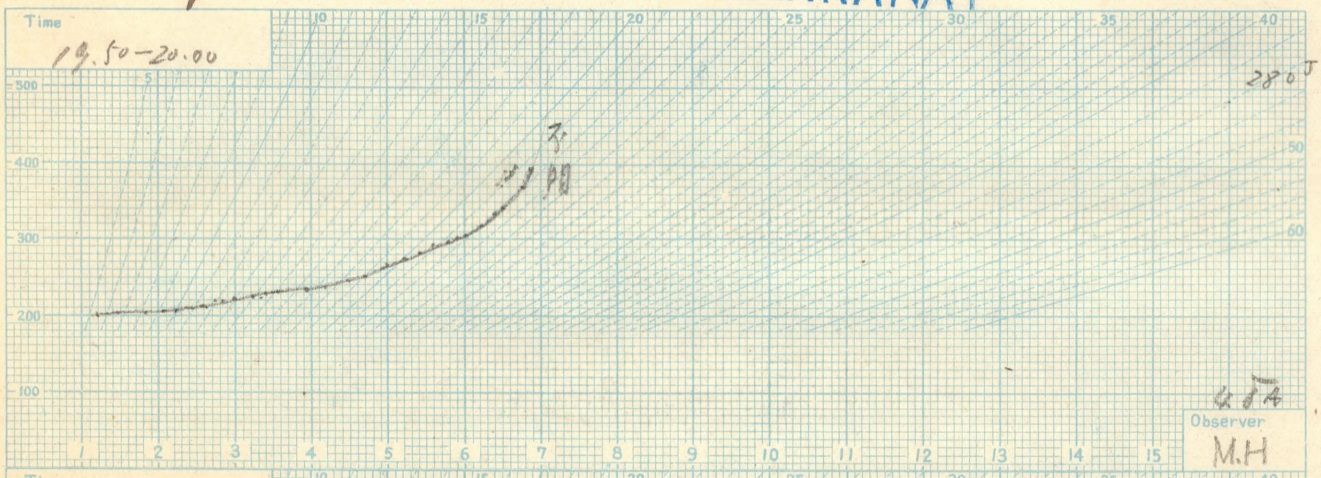
IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 8. 1949 STATION WAKKANAI NO 7235

VIRTUAL HEIGHT IN KM

Time 19.50–20.00



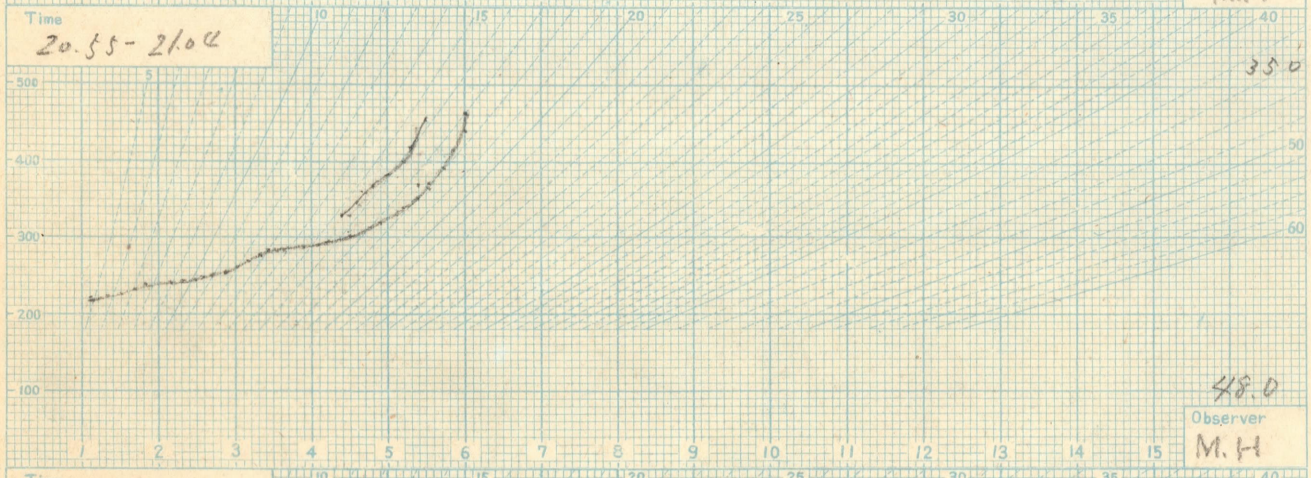
280 J

Observer M.H

$f°F_2$	6.4 J
$h'F_2$	200
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	
M_{3000}	J

VIRTUAL HEIGHT IN KM

Time 20.55–21.00



350

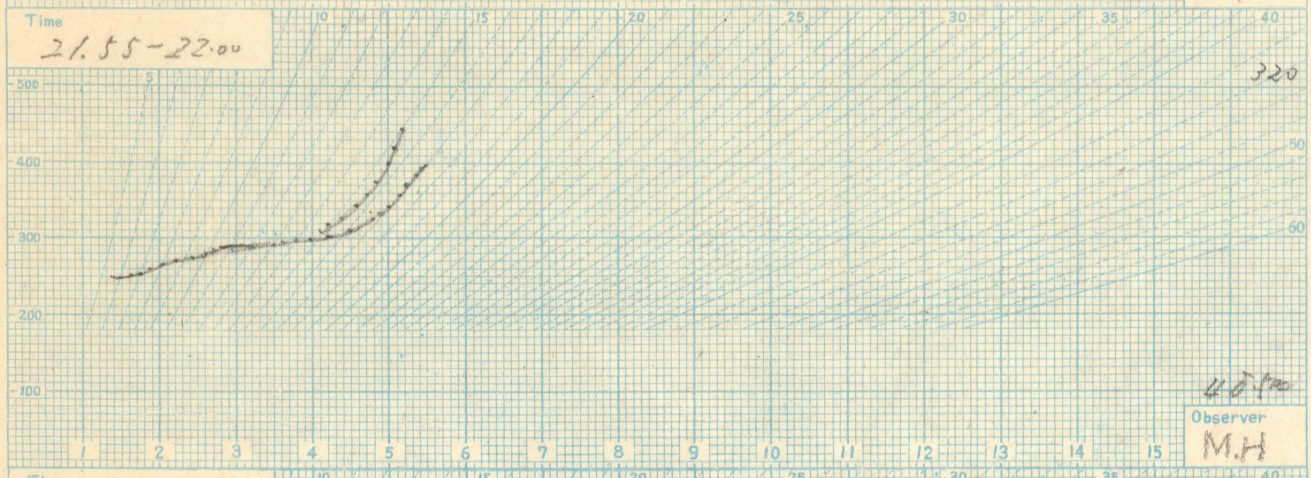
48.0

Observer M.H

$f°F_2$	5.6
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.1
fE_{min}	E
3000 MUF	16.1
M_{3000}	2.8

VIRTUAL HEIGHT IN KM

Time 21.55–22.00



320

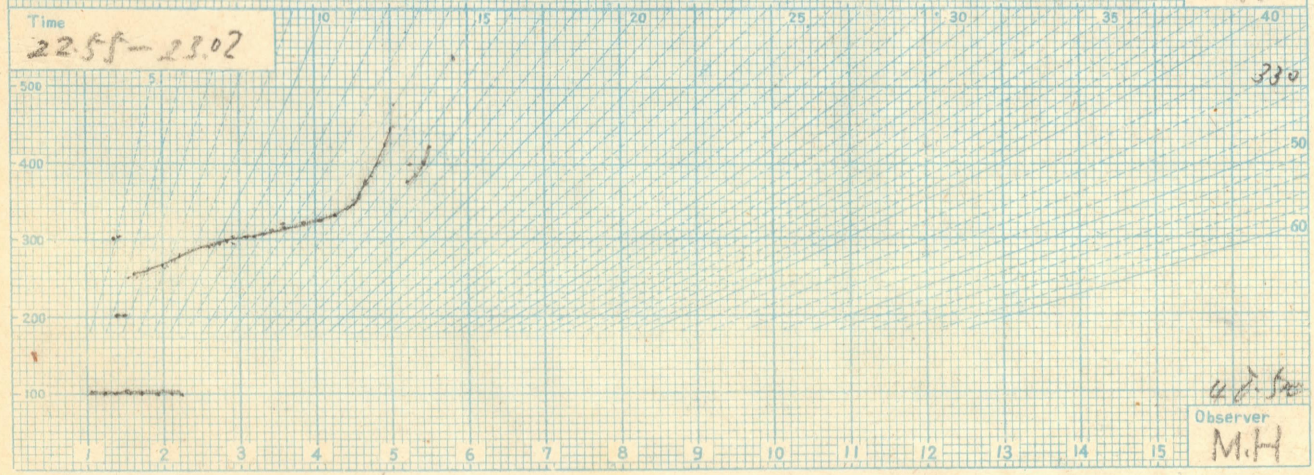
48.0

Observer M.H

$f°F_2$	5.2
$h'F_2$	250
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.4
fE_{min}	E
3000 MUF	15.6
M_{3000}	3.0

VIRTUAL HEIGHT IN KM

Time 22.55–23.02



330

48.0

Observer M.H

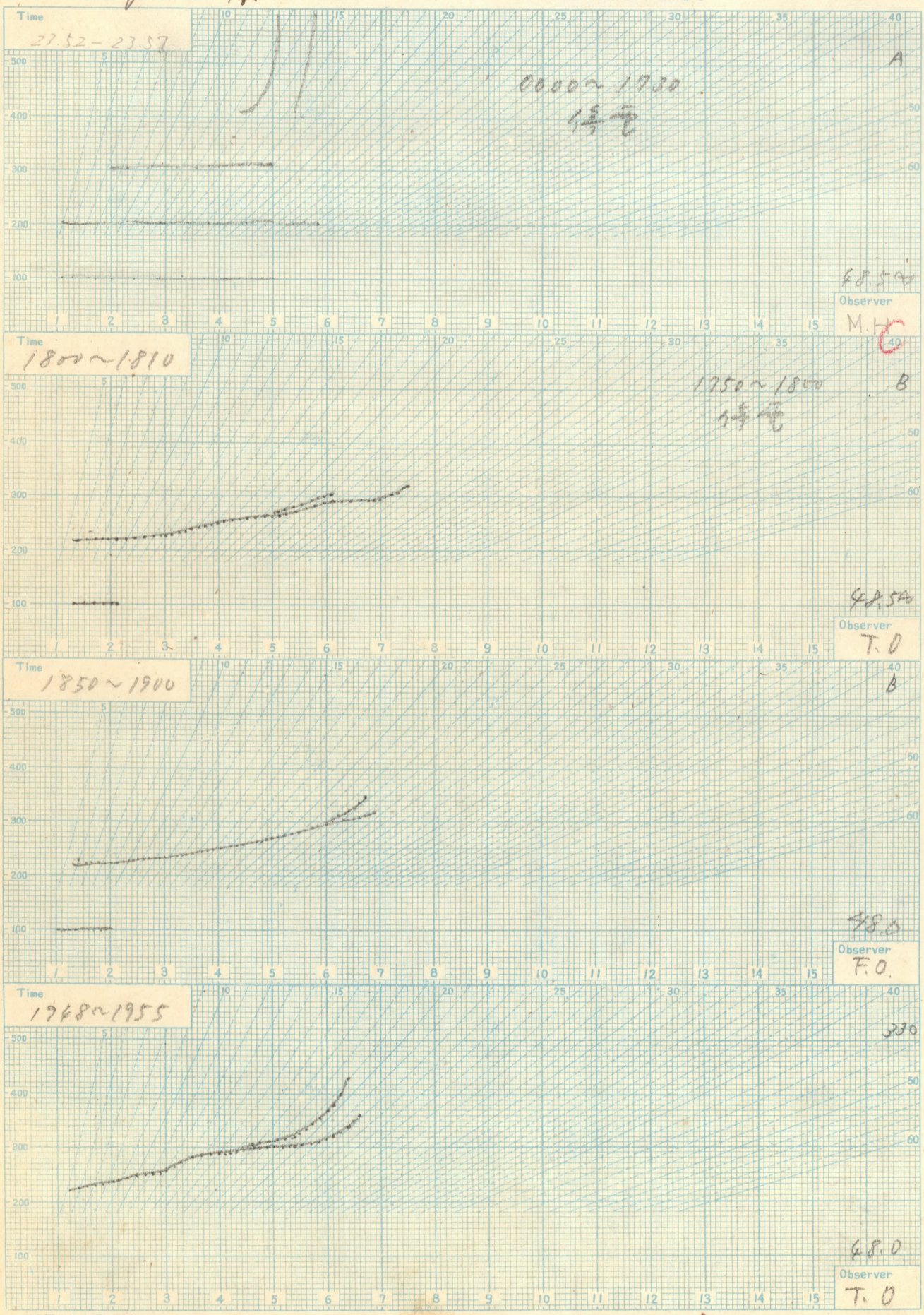
$f°F_2$	5.0
$h'F_2$	250
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.2
fF_{min}	A
fE_{min}	E
3000 MUF	15.1
M_{3000}	3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 9, 1949 STATION WAKKANAI NO 7236

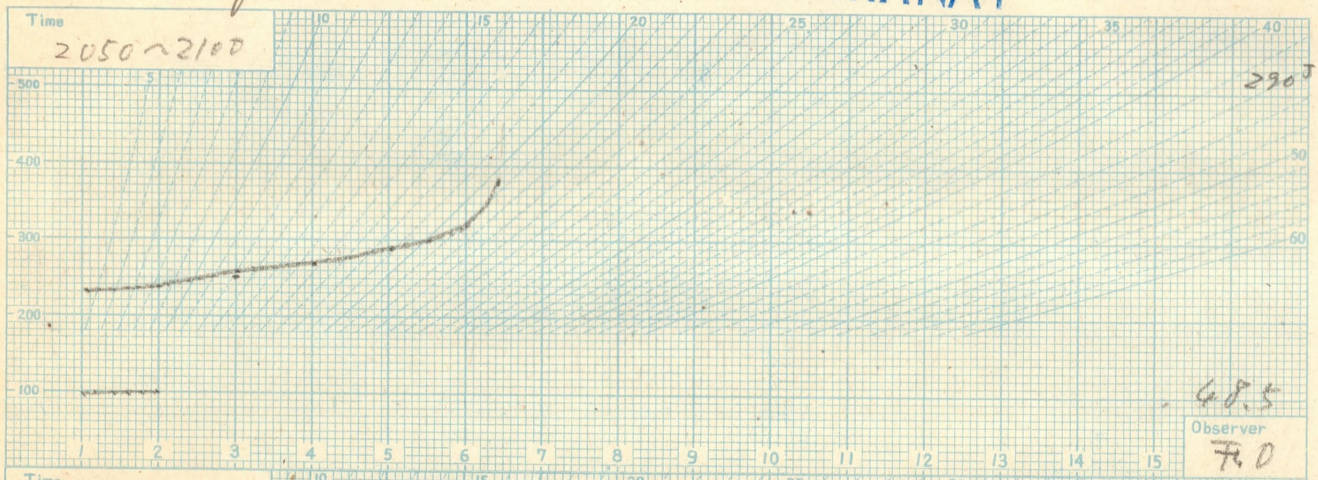


$f°F_2$	5.1
$h'F_2$	A
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	3.0
fF_{min}	A
fE_{min}	1.1
3000 MUF	14.0
M_{3000}	2.7
$f°F_2$	B
$h'F_2$	≥20
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	2.1
fF_{min}	1.3
fE_{min}	1.3
3000 MUF	
M_{3000}	B
$f°F_2$	B
$h'F_2$	≥20
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
fF_{min}	A 1.3
fE_{min}	E
3000 MUF	
M_{3000}	B
$f°F_2$	6.5
$h'F_2$	≥20
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	19.5
M_{3000}	3.0

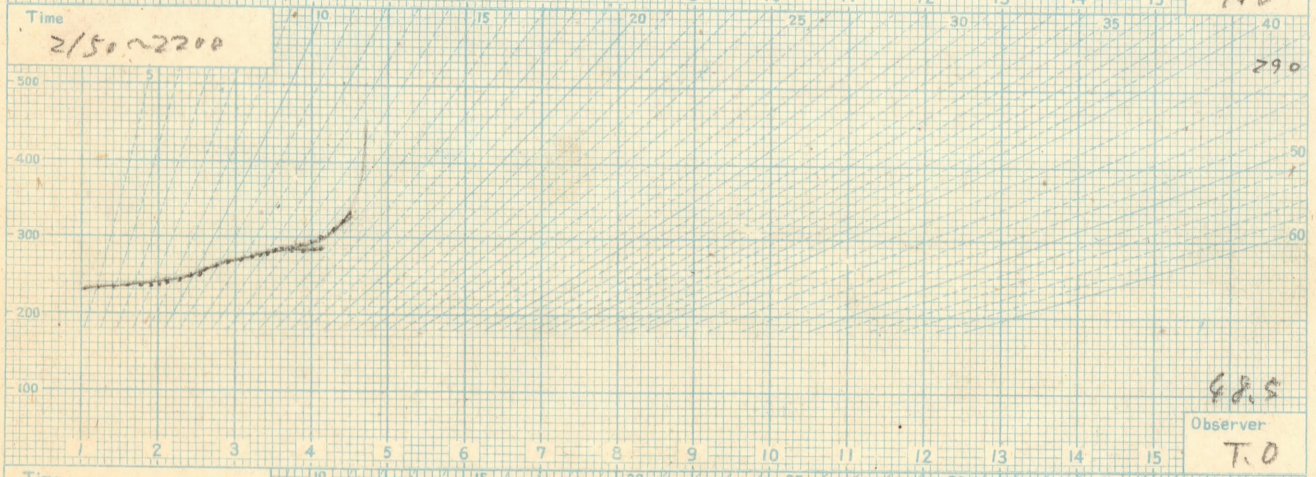
IONOSPHERIC RECORD

135°E MEAN TIME

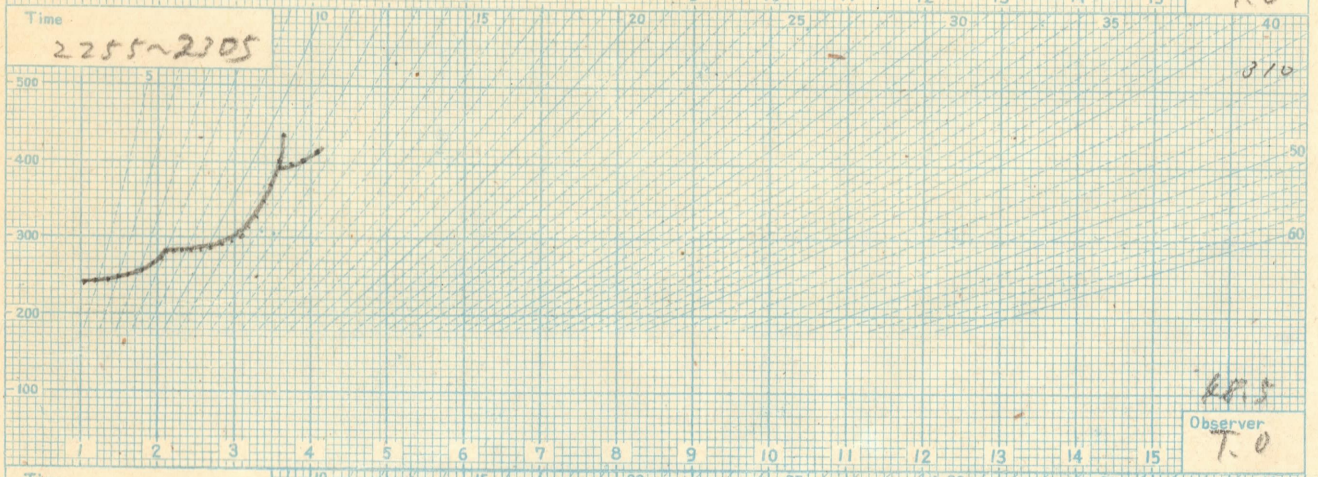
DATE feb 9 1949 STATION WAKKANAI NO 7237



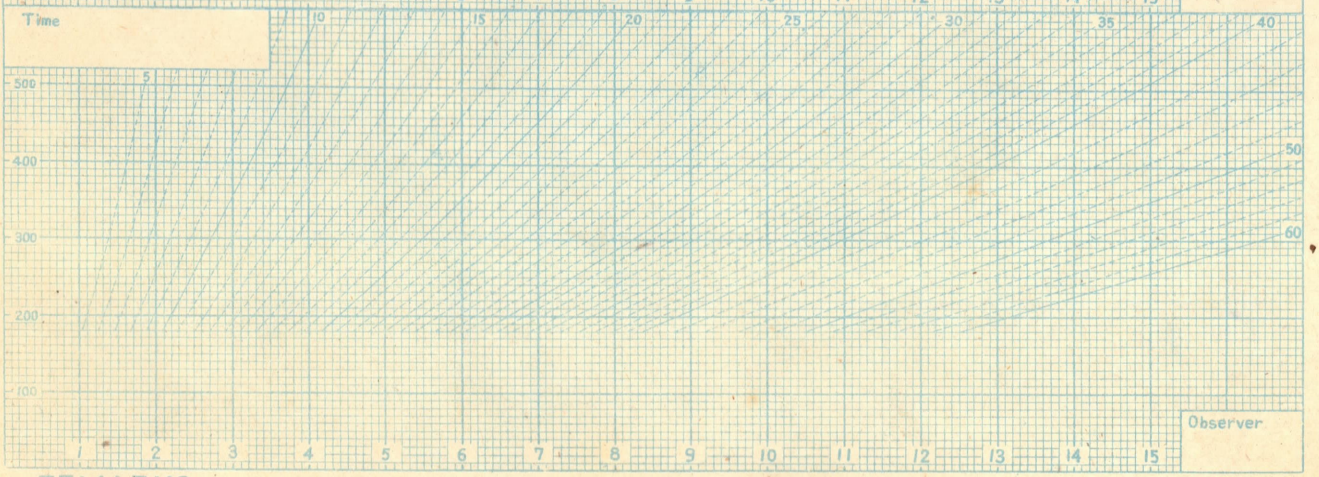
f^oF_2	5.8J
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	2,0
fF_{min}	1,1
fE_{min}	E
3000 MUF	
M_{3000}	J



f^oF_2	4,7
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	15.5
M_{3000}	3.3



f^oF_2	3,7
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	11,3
M_{3000}	3.0



f^oF_2	
$h'F_2$	
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

REMARKS

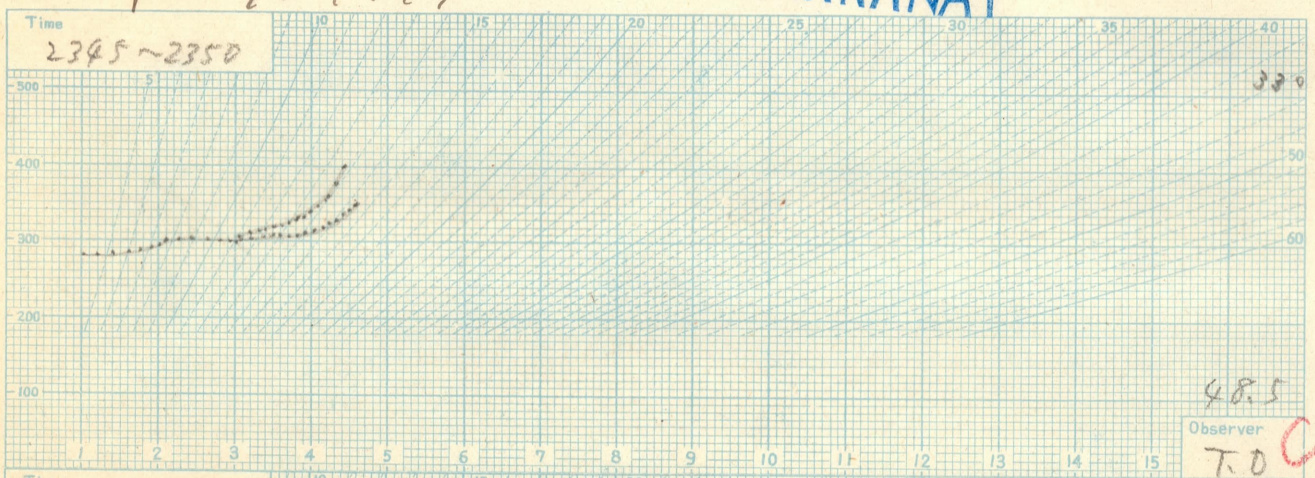
IONOSPHERIC RECORD

135°E MEAN TIME

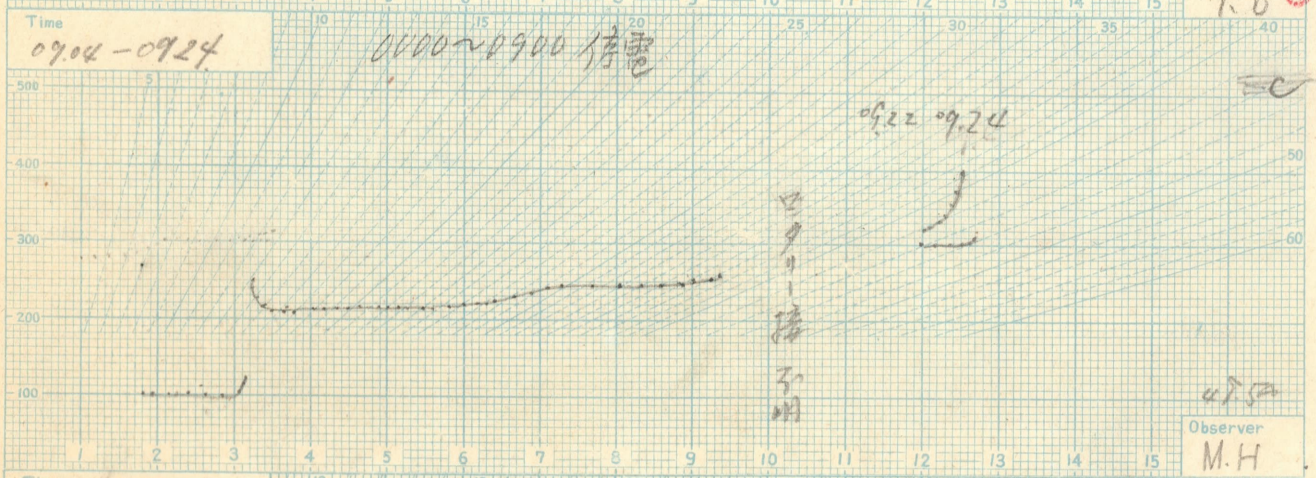
DATE feb 10 1949

STATION WAKKANAI

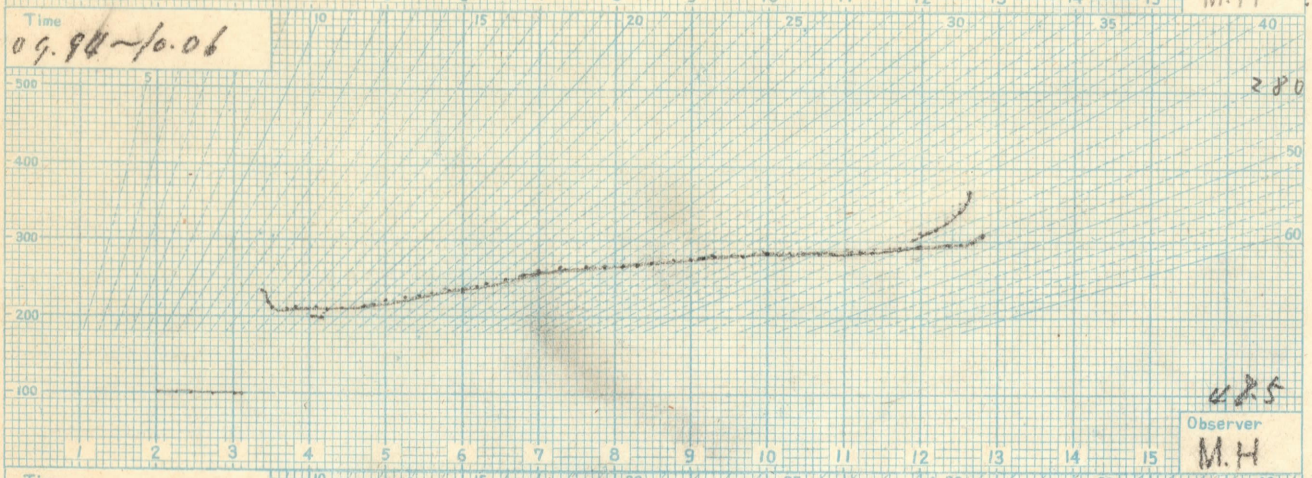
NO 7238



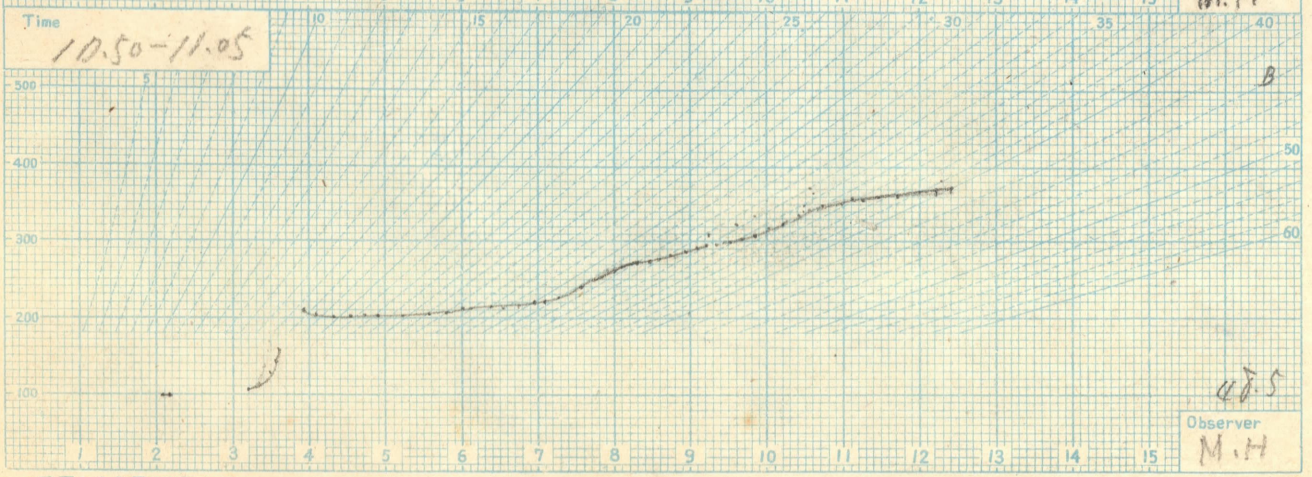
f^oF_2	4.5
$h'F_2$	280
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	13.9
M_{3000}	3.0



f^oF_2	12.5
$h'F_2$	210
f^oF_1	Q
$h'F_1$	Q
f^oE	3.1
$h'E$	100
fE_s	<+E
fF_{min}	3.2
fE_{min}	1.8
3000 MUF	C
M_{3000}	C



f^oF_2	12.7
$h'F_2$	210
f^oF_1	Q
$h'F_1$	Q
f^oE	B
$h'E$ (100)	A
fE_s	B
fF_{min}	3.4
fE_{min}	2.0
3000 MUF	43.2
M_{3000}	3.4



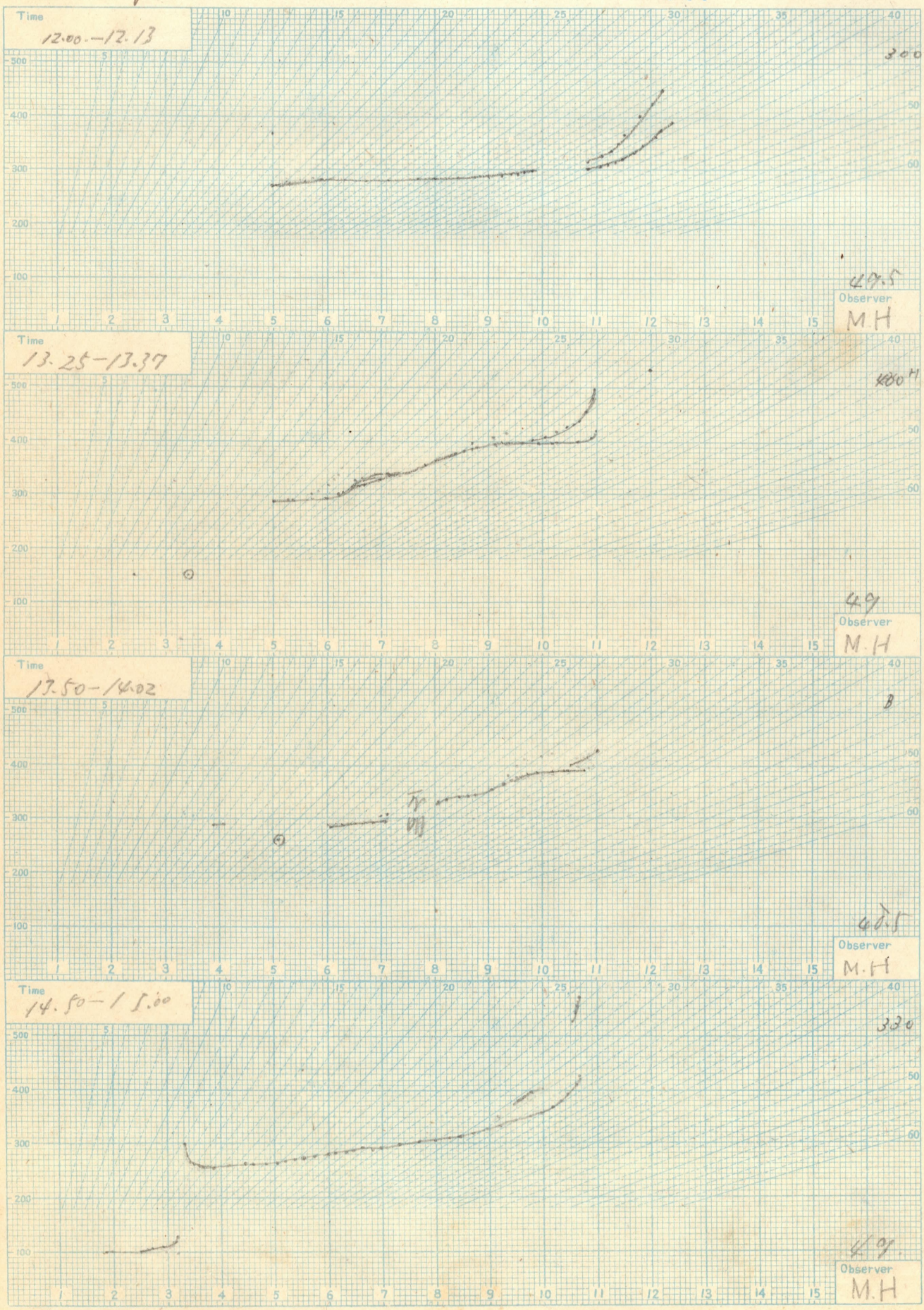
f^oF_2	B
$h'F_2$	200
f^oF_1	Q
$h'F_1$	Q
f^oE	3.7
$h'E$	100
fE_s	<+E
fF_{min}	3.9
fE_{min}	2.1
3000 MUF	
M_{3000}	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE feb 10 1949 STATION WAKKANAI NO 17239



$f°F_2$	12.3	$f°F_2$	11.0 H
$h'F_2$	270	$h'F_2$	≥ 90 H
$f°F_1$	B	$f°F_1$	B
$h'F_1$	B	$h'F_1$	B
$f°E$	B	$f°E$	B
$h'E$	B	$h'E$	B
fE_s	B	fE_s	B
fF_{min}	5.0	fF_{min}	5.0
fE_{min}	B	fE_{min}	B
3000 MUF	38.6	3000 MUF	31.2
M_{3000}	3.1	M_{3000}	2.8 H

$f°F_2$	B	$f°F_2$	10.8
$h'F_2$	≥ 80	$h'F_2$	250
$f°F_1$	B	$f°F_1$	B
$h'F_1$	B	$h'F_1$	B
$f°E$	B	$f°E$	3.2
$h'E$	B	$h'E$	100
fE_s	B	fE_s	< fE
fF_{min}	5.0	fF_{min}	3.3
fE_{min}	B	fE_{min}	1.8
3000 MUF		3000 MUF	30.5
M_{3000}	B	M_{3000}	2.8

REMARKS

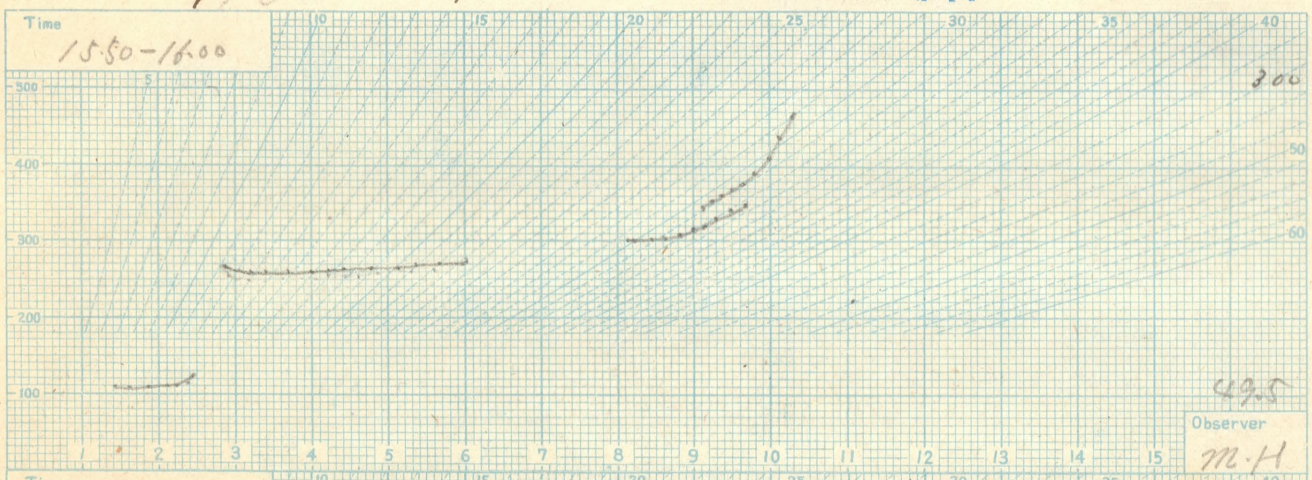
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 10 1949 STATION WAKKANAI NO 7240

VIRTUAL HEIGHT IN KM

Time 1550-1600



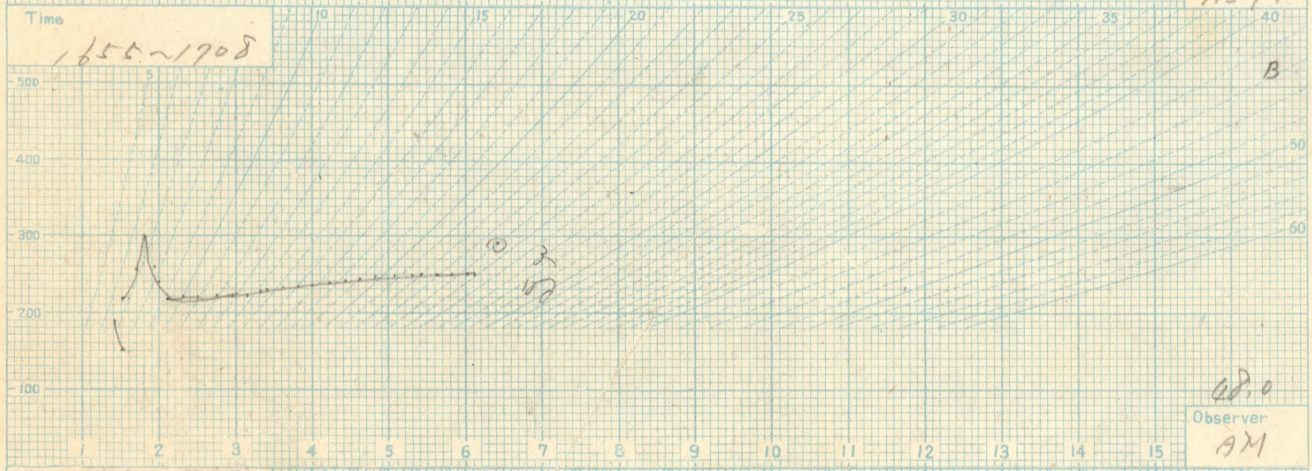
49.5

Observer M.H

$f°F_2$	10.3
$h'F_2$	260
$f°F_1$	0
$h'F_1$	0
$f°E$	2.5
$h'E$	110
fE_s	<fE
fF_{min}	2.8
fE_{min}	1.4
3000 MUF	31.0
M_{3000}	3.0

VIRTUAL HEIGHT IN KM

Time 1655~1708



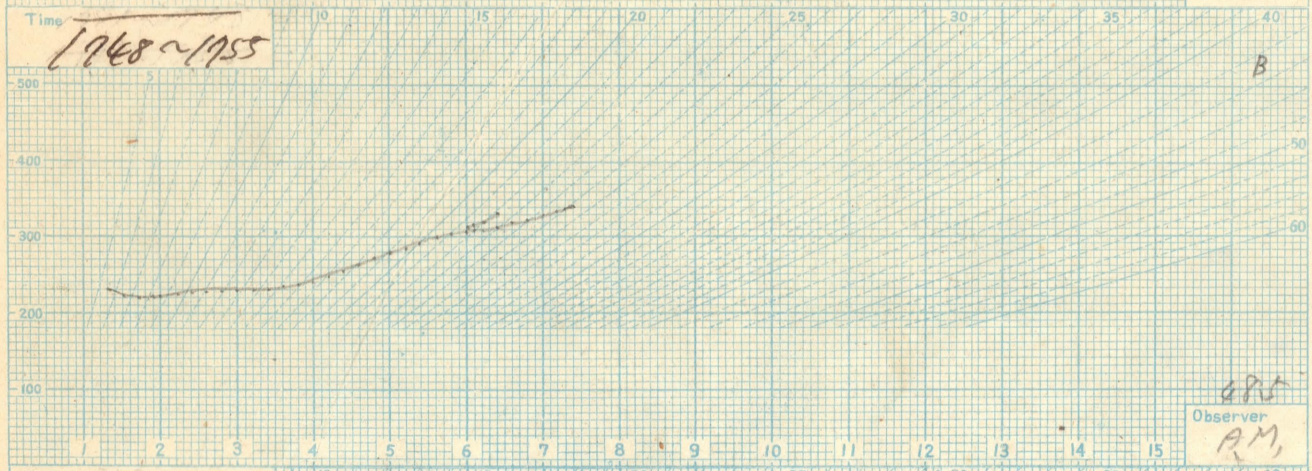
48.0

Observer AM

$f°F_2$	B
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	1.8
$h'E$	B
fE_s	B
fF_{min}	1.8
fE_{min}	B
3000 MUF	
M_{3000}	B

VIRTUAL HEIGHT IN KM

Time 1748~1755



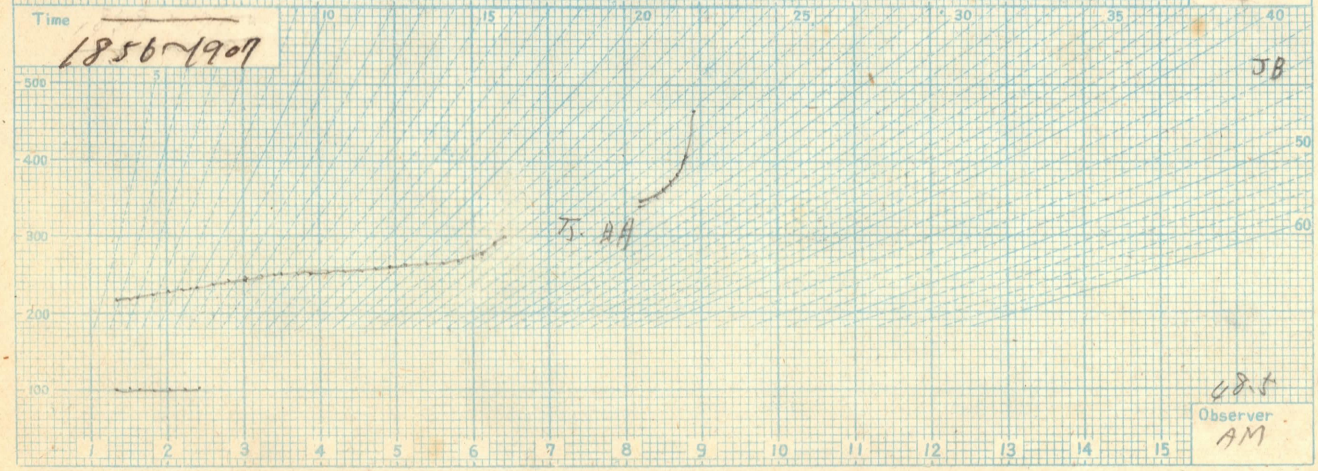
48.5

Observer AM

$f°F_2$	B
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	B
fE_s	B
fF_{min}	1.3
fE_{min}	B
3000 MUF	
M_{3000}	B

VIRTUAL HEIGHT IN KM

Time 1856~1909



48.5

Observer AM

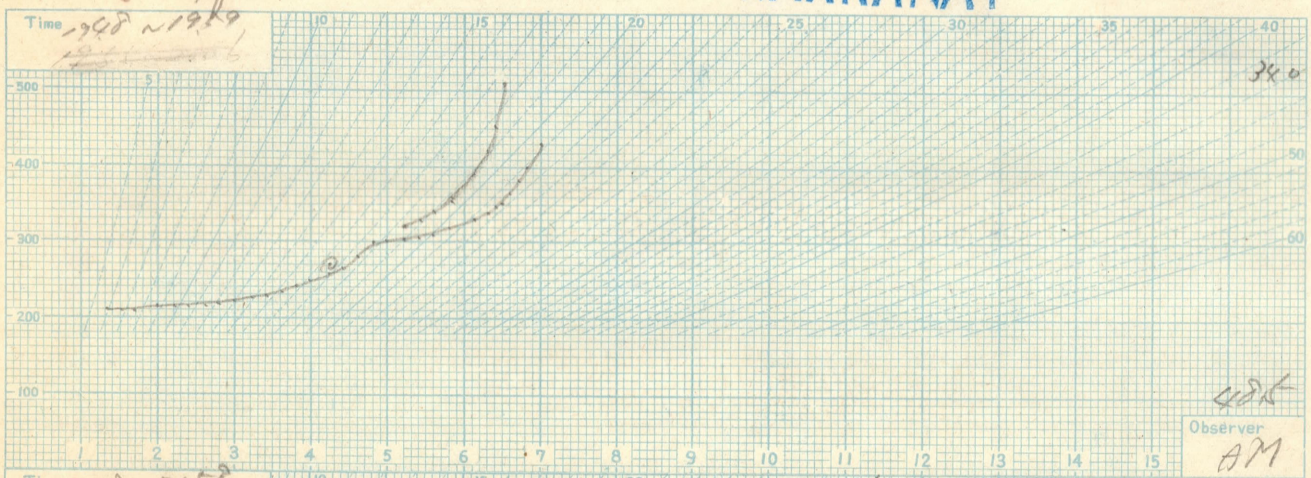
$f°F_2$	8.2J
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.4
fF_{min}	1.3
fE_{min}	1.3
3000 MUF	
M_{3000}	J

REMARKS

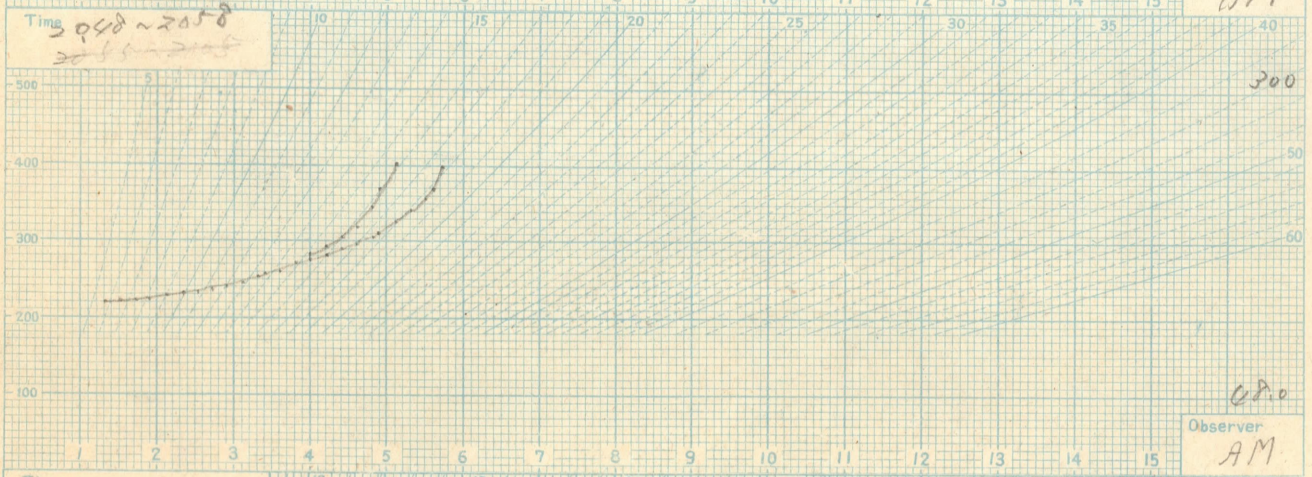
IONOSPHERIC RECORD

135°E MEAN TIME

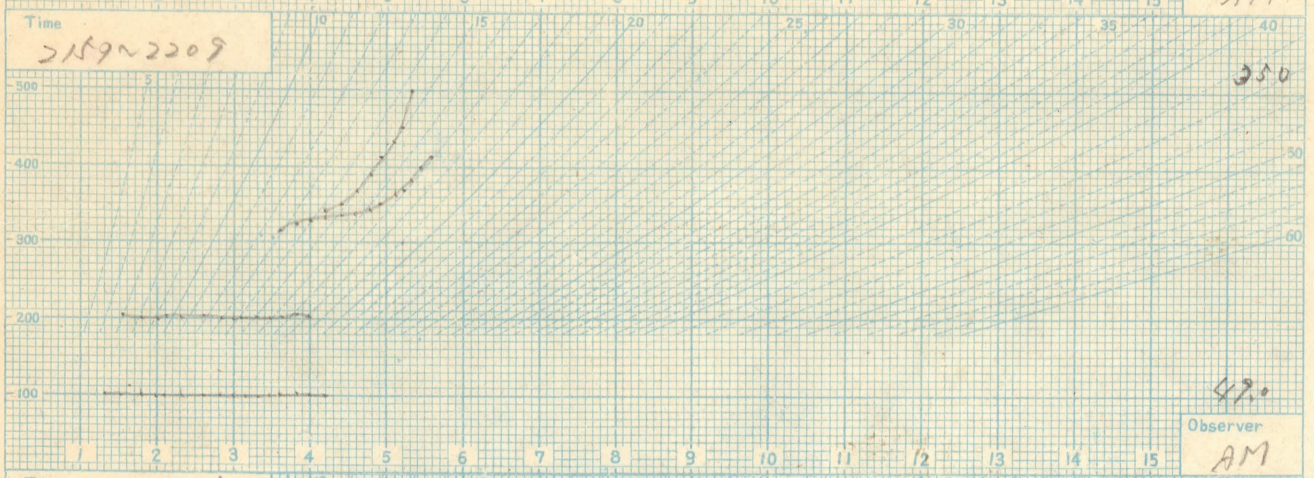
DATE feb 10 1949 STATION WAKKANAI NO 7241



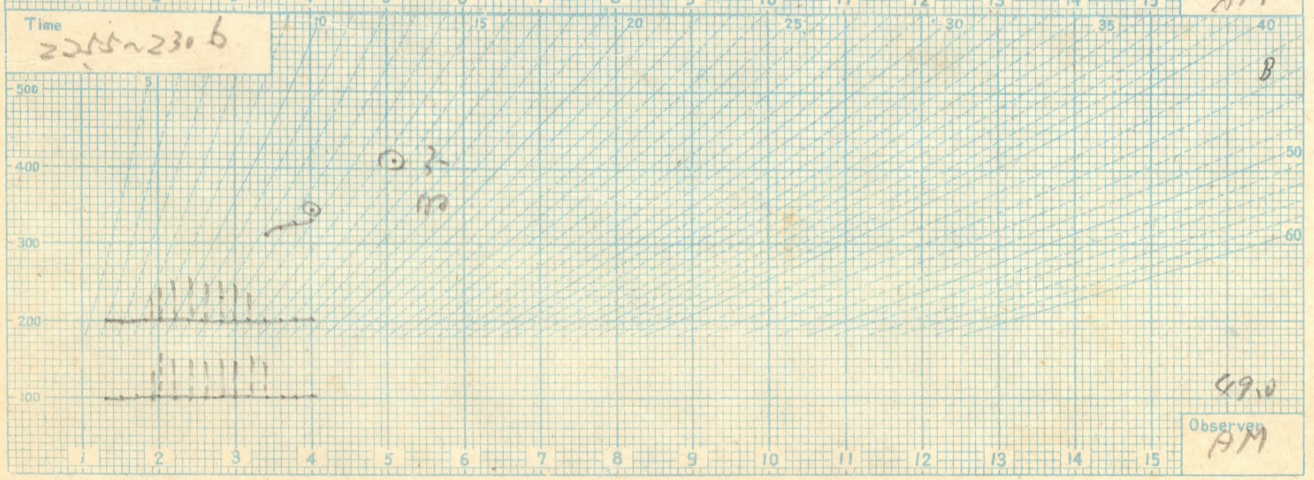
f^oF_2	6,5
$h'F_2$	210
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1,3
fE_{min}	E
3000 MUF	19,2
M_{3000}	2,9



f^oF_2	5,2
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1,3
fE_{min}	E
3000 MUF	16,3
M_{3000}	3,1



f^oF_2	5,3
$h'F_2$	~~(310)~~ A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	4,2
fF_{min}	A
fE_{min}	1,3
3000 MUF	15,0
M_{3000}	2,8



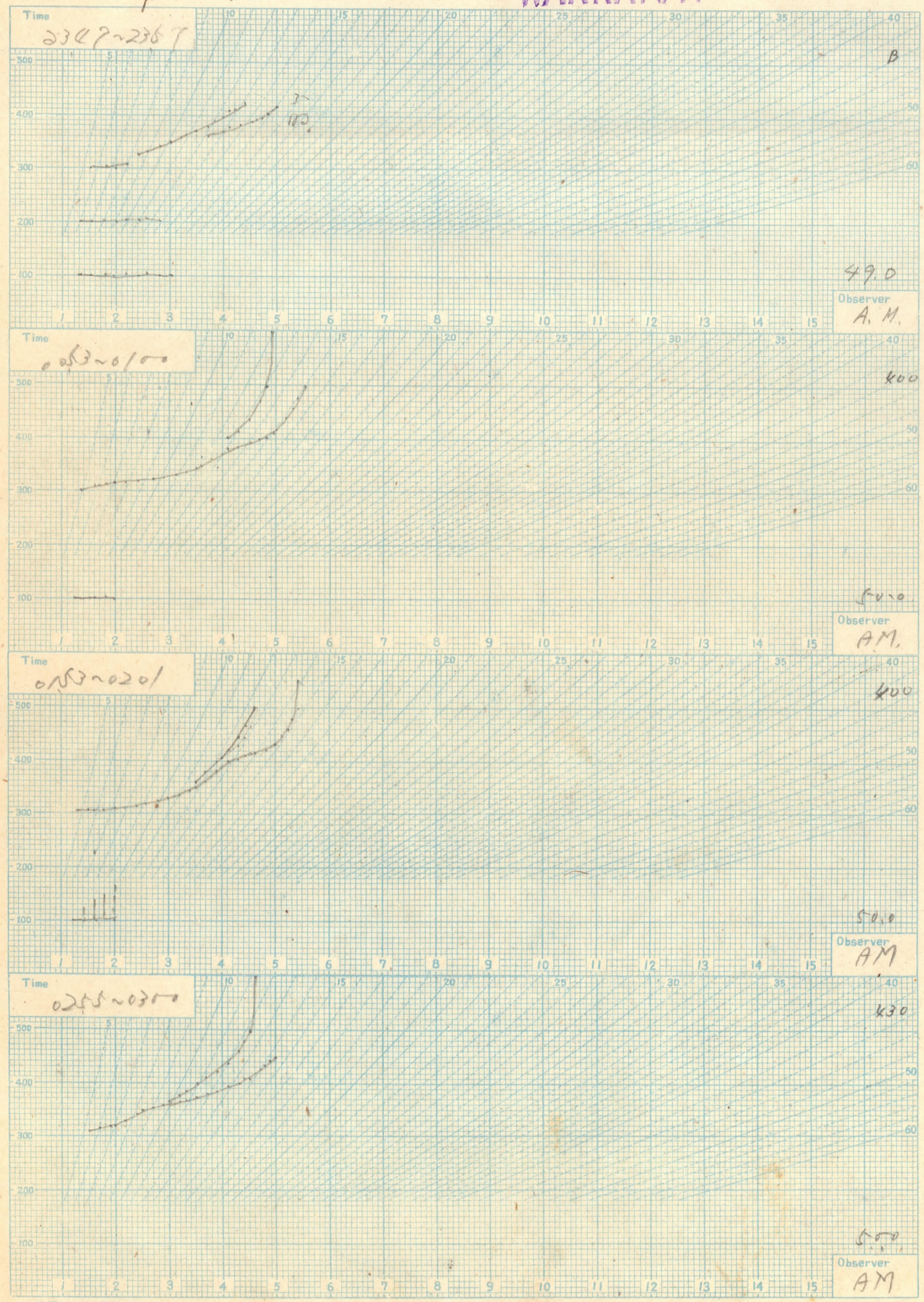
f^oF_2	B
$h'F_2$	A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	4,0 F
fF_{min}	A
fE_{min}	1,3
3000 MUF	
M_{3000}	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 11 1949 STATION WAKKANAI NO 7242



$f°F_2$	B			
$h'F_2$ (300)	A			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	3.0			
ff_{min}	A			
fE_{min}	1.3			
3000 MUF				
M_{3000}	B			
$f°F_2$	4.9			
$h'F_2$	300			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	2.0			
ff_{min}	1.3			
fE_{min}	1.2			
3000 MUF	13.2			
M_{3000}	2.6			
$f°F_2$	4.7			
$h'F_2$	300			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	2.0			
ff_{min}	1.3			
fE_{min}	1.2			
3000 MUF	12.5			
M_{3000}	2.6			
$f°F_2$	4.6			
$h'F_2$	310			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	E			
ff_{min}	AS			
fE_{min}	E			
3000 MUF	12.3			
M_{3000}	2.6			

REMARKS

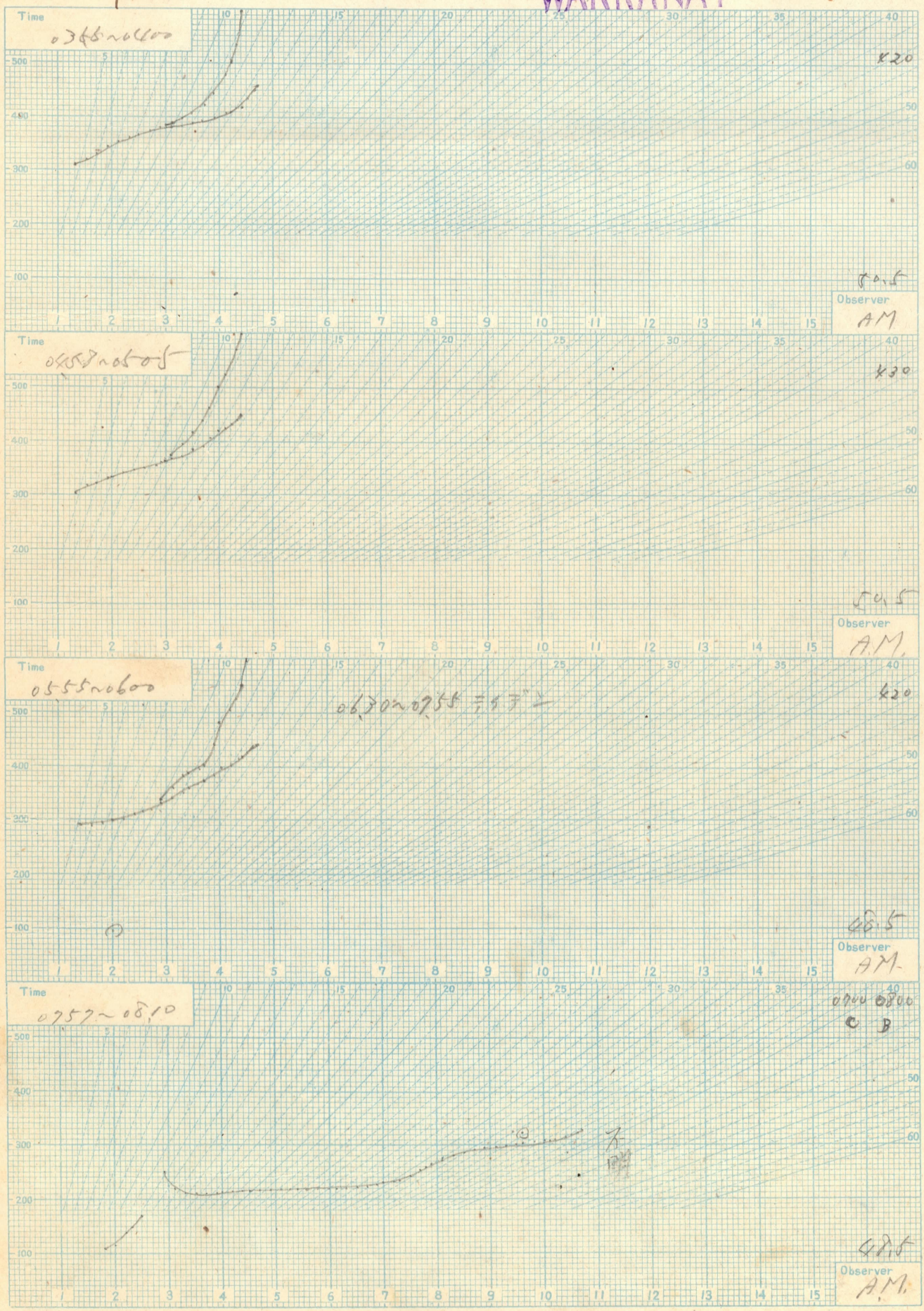
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 11 1949

STATION WAKKANAI

NO 7243



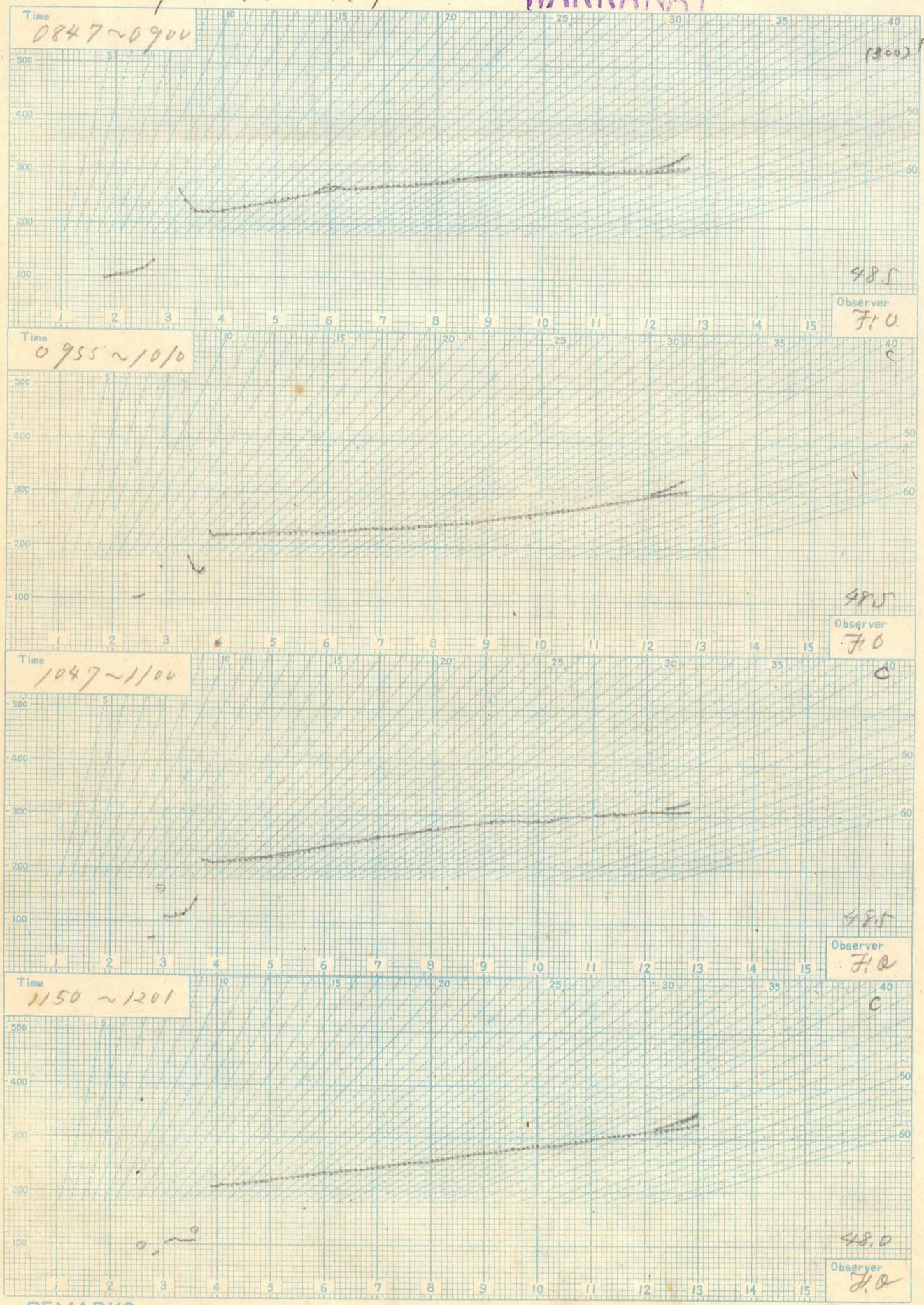
$f°F_2$	4.4	4.5	4.6	C B
$h'F_2$	310	300	290	[290] 290
$f°F_1$			0	C Q L
$h'F_1$			0	C Q 210
$f°E$			E	C 2.8
$h'E$			E	C .110
fE_s	E	E	B	C B
fF_{min}	1.3	1.3	1.4	[2.2] 2.9
fE_{min}	E	E	B	C 1.8
3000 MUF	11.4	10.8	11.3	
M_{3000}	2.5	2.4	2.5	C B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 11 1949 STATION WAKKANAI NO 7244



$f°F_2$	(13.3)F	$f°F_2$	C
$h'F_2$	270	$h'F_2$	220
$f°F_1$	L	$f°F_1$	D
$h'F_1$	220	$h'F_1$	D
$f°E$	(3.0)	$f°E$	(3.4)B
$h'E$	100	$h'E$	100
fE_s	B	fE_s	B
ff_{min}	3.2	ff_{min}	3.8
fE_{min}	1.8	fE_{min}	2.4
3000 MUF	44.0	3000 MUF	
M_{3000}	(3.3)F	M_{3000}	C

$f°F_2$	C	$f°F_2$	C
$h'F_2$	210	$h'F_2$	210
$f°F_1$	D	$f°F_1$	D
$h'F_1$	D	$h'F_1$	D
$f°E$	3.6	$f°E$	B
$h'E$	110	$h'E$	A(100)
fE_s	$<f_E$	fE_s	B
ff_{min}	3.7	ff_{min}	3.9
fE_{min}	3.0	fE_{min}	3.0
3000 MUF		3000 MUF	
M_{3000}	C	M_{3000}	C

REMARKS

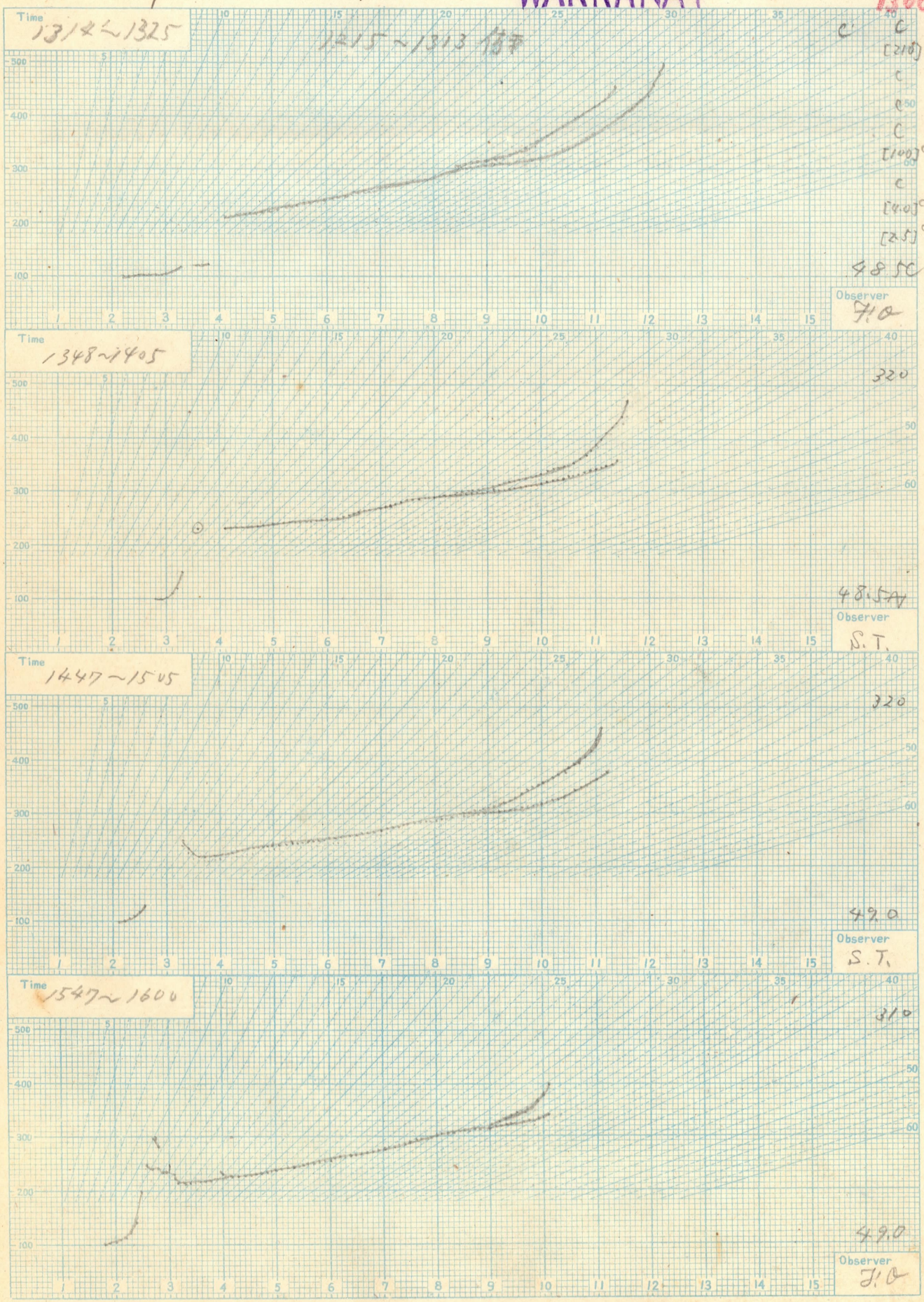
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 11 1949

STATION WAKKANAI

NO 7245



$f°F_2$	11.6
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	100
fE_s	B
fF_{min}	4.1
fE_{min}	2.2
3000 MUF	33.2
M_{3000}	2.9

$f°F_2$	11.7
$h'F_2$	230
$f°F_1$	0
$h'F_1$	0
$f°E$	3.3
$h'E$	100
fE_s	B
fF_{min}	4.1
fE_{min}	2.8
3000 MUF	35.0
M_{3000}	2.8

$f°F_2$	11.1
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	2.7
$h'E$	100
fE_s	B
fF_{min}	3.3
fE_{min}	2.1
3000 MUF	33.0
M_{3000}	2.9

$f°F_2$	10.2
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	2.5
$h'E$	100
fE_s	$<fE$
fF_{min}	2.6
fE_{min}	1.8
3000 MUF	32.X
M_{3000}	3.1

REMARKS

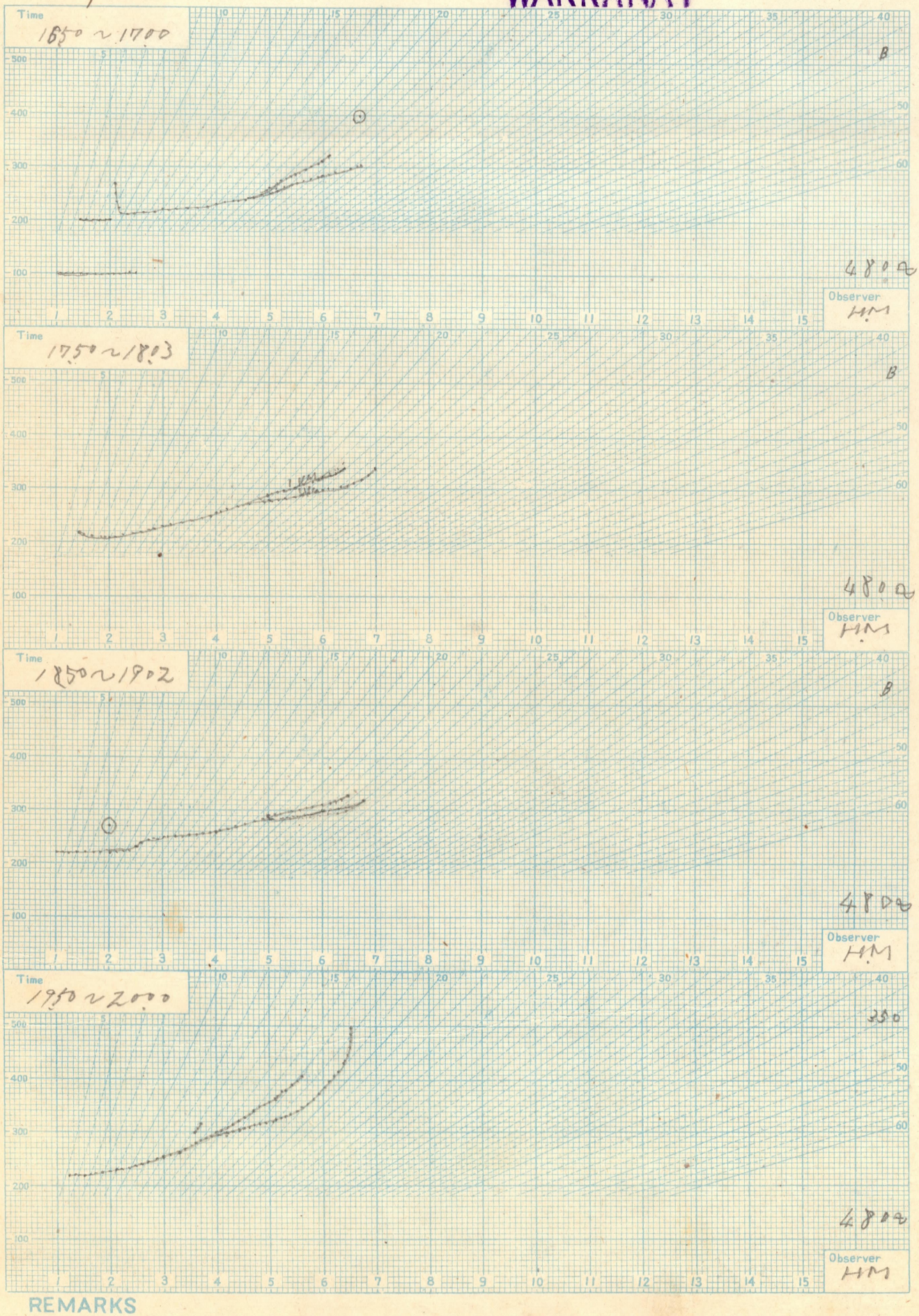
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB. 11 1949

STATION WAKKANAI

NO 7246



$f°F_2$	B	$f°F_2$	B	$f°F_2$	B	$f°F_2$	5.9
$h'F_2$	210	$h'F_2$	210	$h'F_2$	220	$h'F_2$	220
$f°F_1$	Q	$f°F_1$	Q	$f°F_1$		$f°F_1$	
$h'F_1$	Q	$h'F_1$	Q	$h'F_1$		$h'F_1$	
$f°E$	2.1	$f°E$	B	$f°E$		$f°E$	
$h'E$	A	$h'E$	B	$h'E$		$h'E$	
fE_s	2.5	fE_s	B	fE_s	E	fE_s	E
fF_{min}	2.1	fF_{min}	1.4	fF_{min}	E	fF_{min}	1.2
fE_{min}	E	fE_{min}	B	fE_{min}	E	fE_{min}	E
3000 MUF		3000 MUF		3000 MUF		3000 MUF	12.0
M_{3000}	B	M_{3000}	B	M_{3000}	B	M_{3000}	2.8

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 11 1949 STATION WAKKANAI NO 7247

VIRTUAL HEIGHT IN KM

Time 2055 ~ 2108

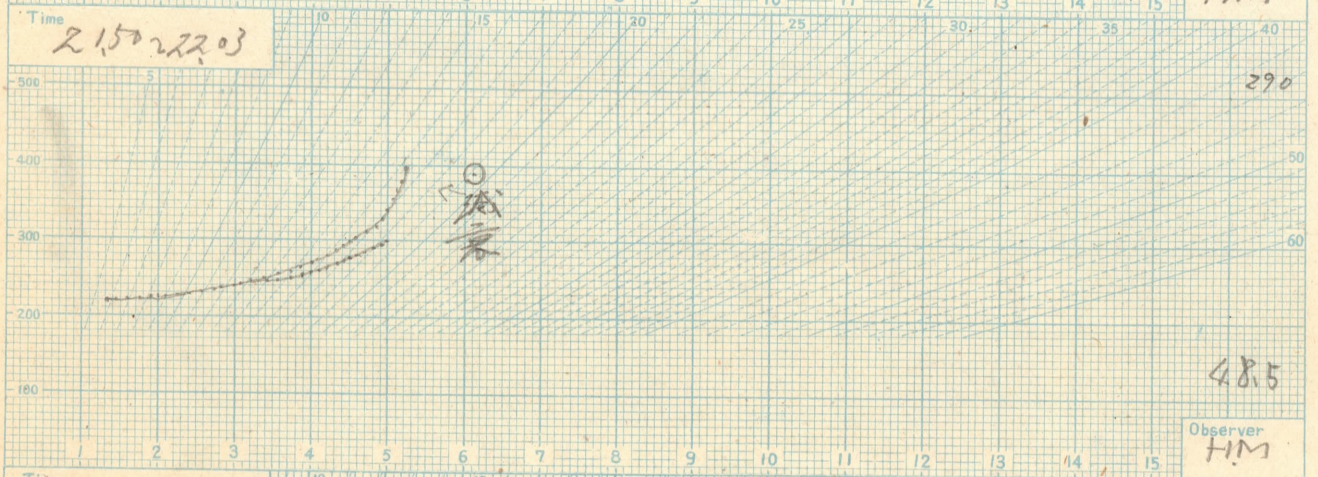


$f°F_2$	6.2
$h'F_2$	270
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.8
fE_{min}	E
3000 MUF	18.5
M_{3000}	2.9

Observer HM

VIRTUAL HEIGHT IN KM

Time 2150 ~ 2203

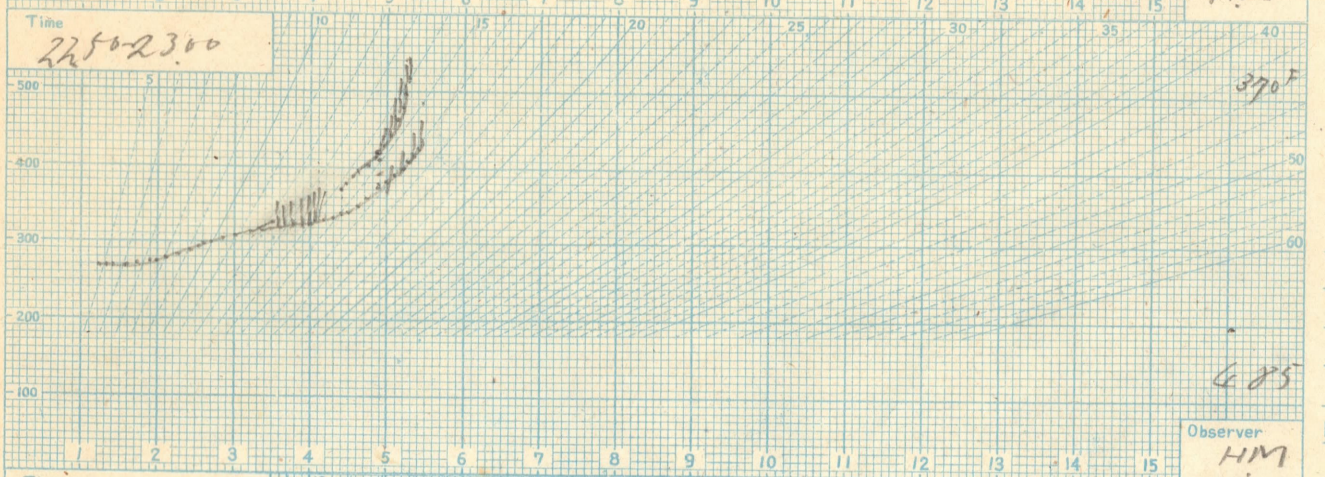


$f°F_2$	5.2
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	17.0
M_{3000}	3.2

Observer HM

VIRTUAL HEIGHT IN KM

Time 2250 ~ 2300

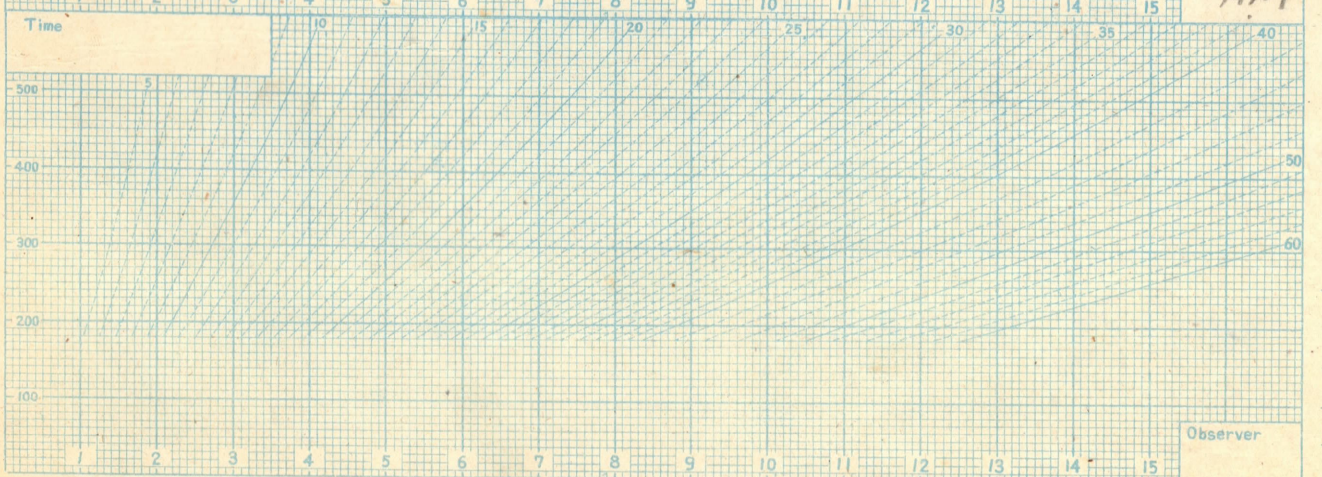


$f°F_2$	5.3 F
$h'F_2$	270
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	14.7
M_{3000}	3.7 F

Observer HM

VIRTUAL HEIGHT IN KM

Time



$f°F_2$	
$h'F_2$	
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

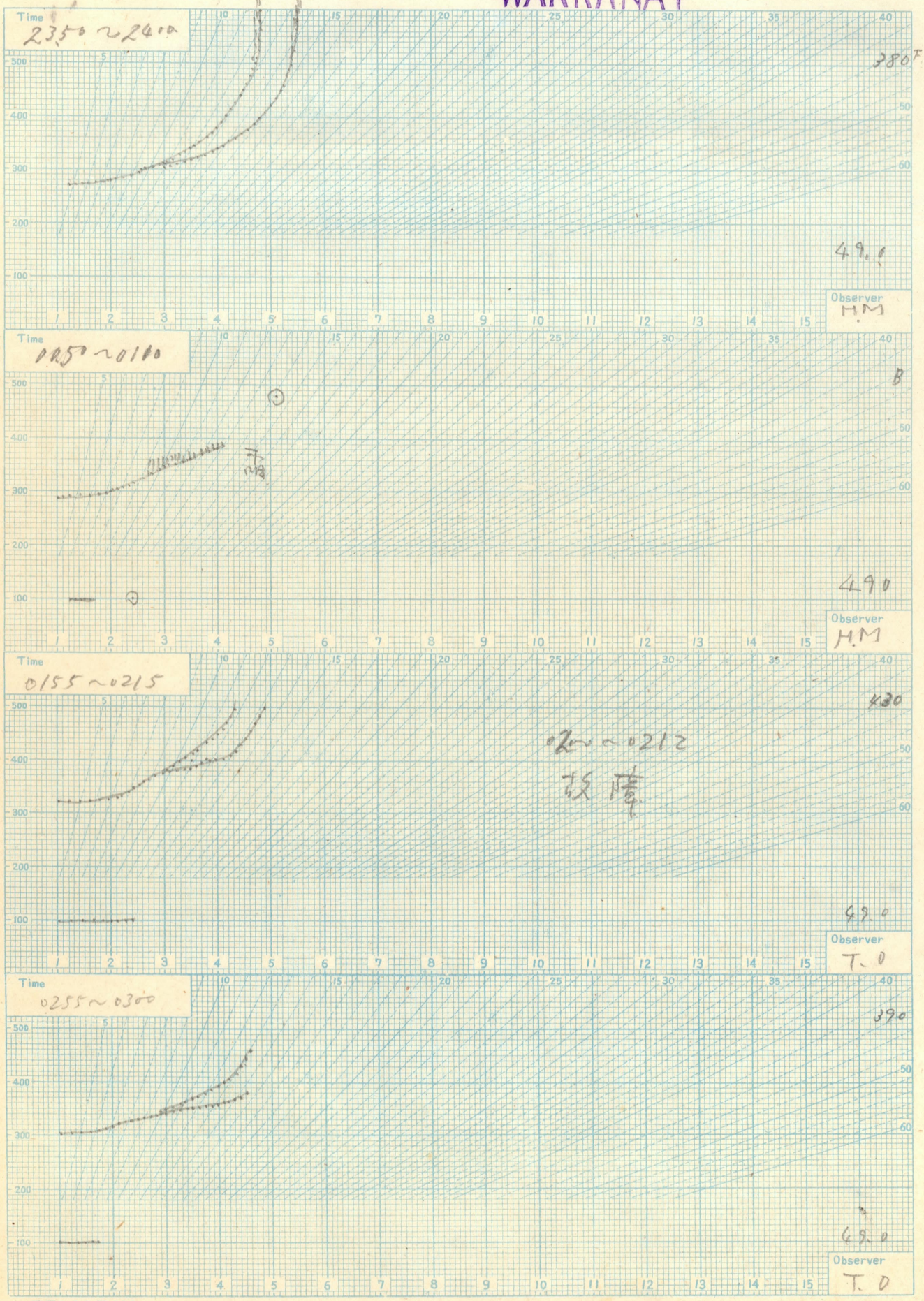
Observer

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12 1949 STATION WAKKANAI NO 7248



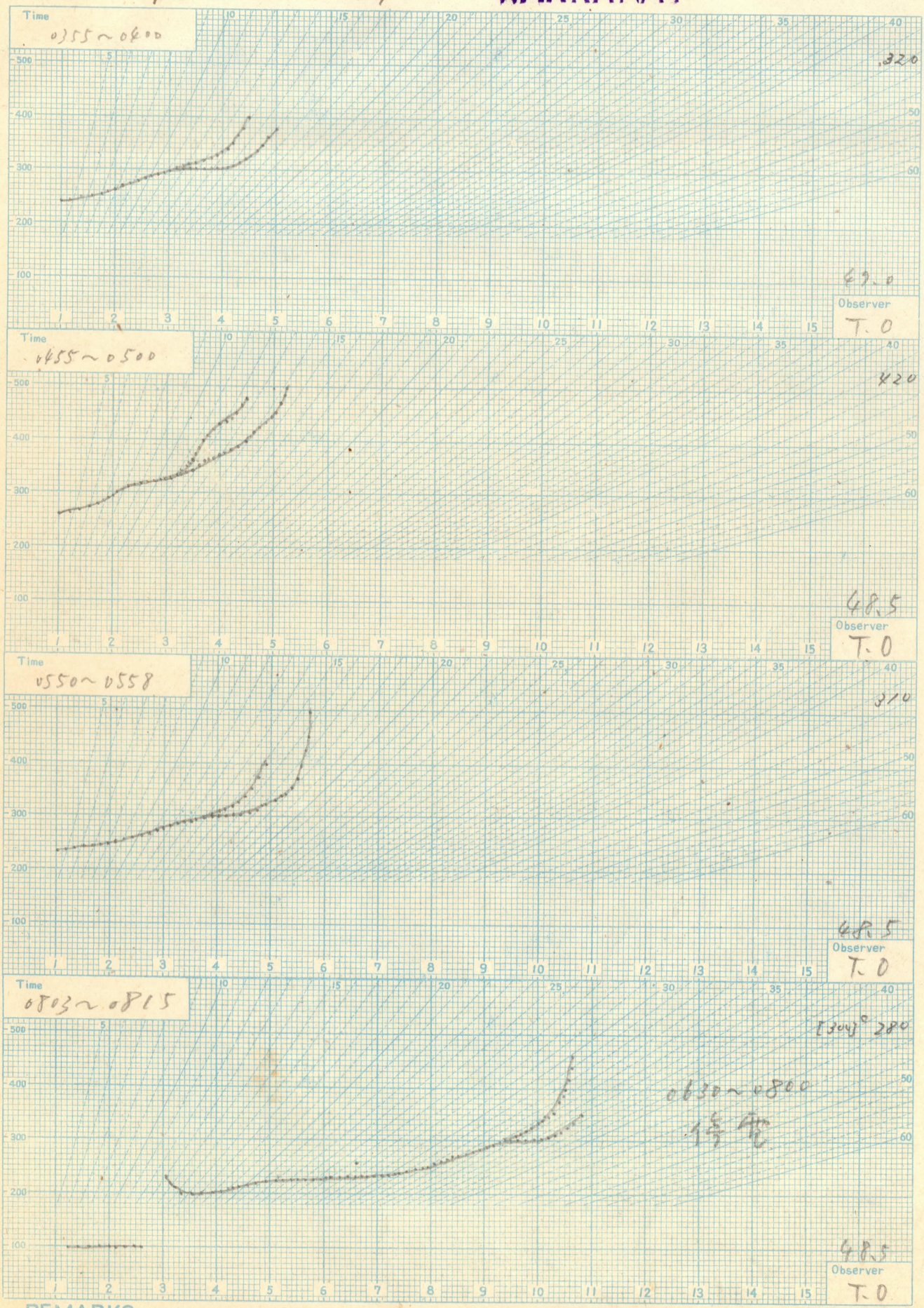
$f°F_2$	4.8F	$f°F_2$	B	$f°F_2$	4.4	$f°F_2$	4.7
$h'F_2$	270	$h'F_2$	290	$h'F_2$	320	$h'F_2$	300
$f°F_1$		$f°F_1$		$f°F_1$		$f°F_1$	
$h'F_1$		$h'F_1$		$h'F_1$		$h'F_1$	
$f°E$		$f°E$		$f°E$		$f°E$	
$h'E$		$h'E$		$h'E$		$h'E$	
fE_s	E	fE_s	1.7	fE_s	2.4	fE_s	1.7
fF_{min}	1.2	fF_{min}	E	fF_{min}	E	fF_{min}	E
fE_{min}	E	fE_{min}	1.2	fE_{min}	E	fE_{min}	E
3000 MUF	13.0	3000 MUF		3000 MUF	11.7	3000 MUF	13.0
M_{3000}	2.7F	M_{3000}	B	M_{3000}	2.6	M_{3000}	2.7

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12. 1949 STATION WAKKANAI NO 7249



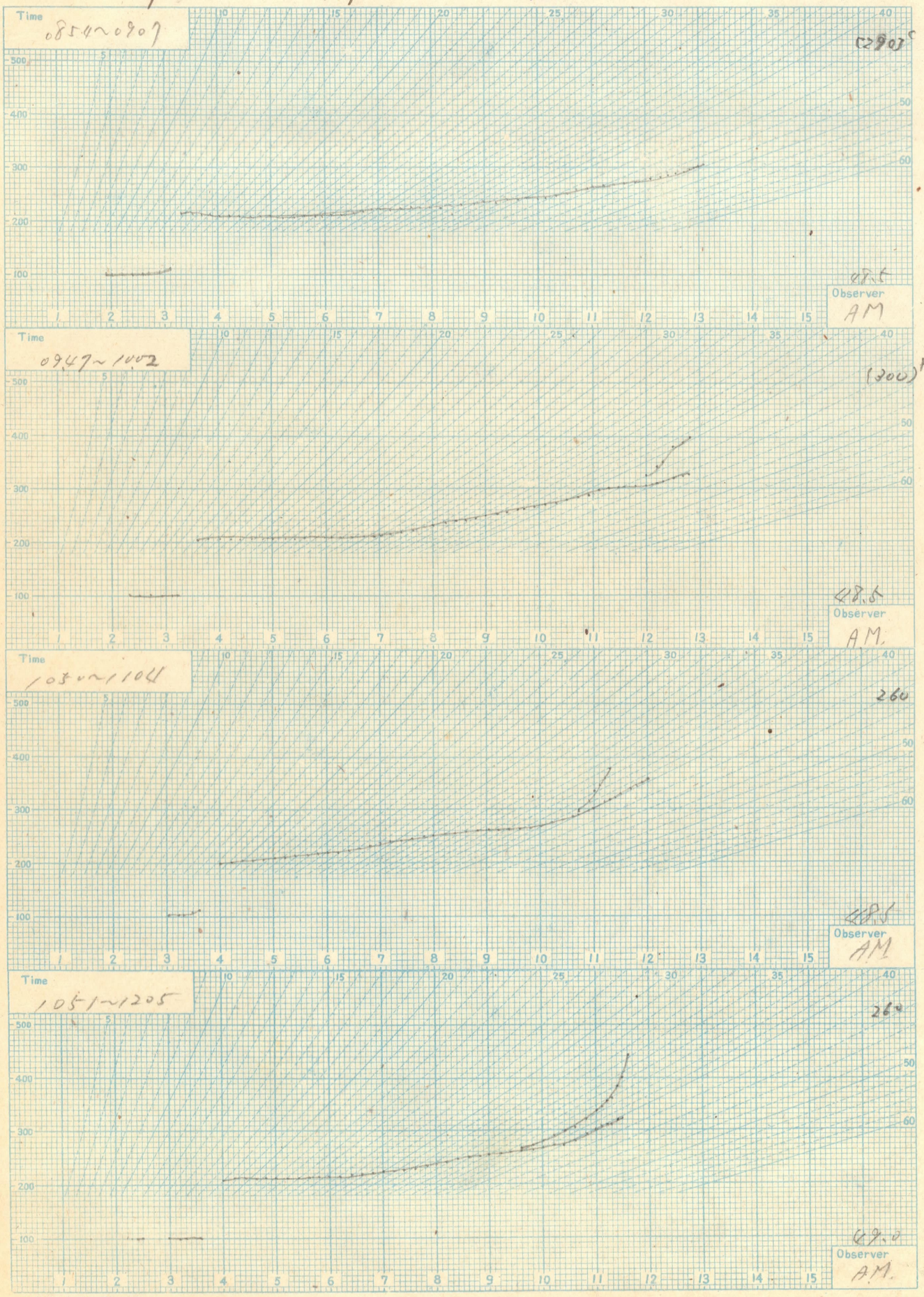
$f°F_2$	4.6	$f°F_2$	4.6
$h'F_2$	≥ 40	$h'F_2$	≥ 60 E
$f°F_1$		$f°F_1$	
$h'F_1$		$h'F_1$	
$f°E$		$f°E$	
$h'E$		$h'E$	
fE_s	E	fE_s	E
fF_{min}	E	fF_{min}	E
fE_{min}	E	fE_{min}	E
3000 MUF	14.0	3000 MUF	12.5
M_{3000}	3.0	M_{3000}	2.7

$f°F_2$	5.0	$f°F_2$ [279]°	10.7
$h'F_2$	≥ 30	$h'F_2$ [234]°	220
$f°F_1$	(	$f°F_1$	(L
$h'F_1$	(	$h'F_1$	(200
$f°E$	(	$f°E$	((3.0)
$h'E$	(	$h'E$	((100)
fE_s	(	fE_s	(8
fF_{min}	(	fF_{min}	(3.0
fE_{min}	E	fE_{min}	(1.2
3000 MUF	15.4	3000 MUF	34.5
M_{3000}	3.0	M_{3000} [3.0]°	3.1

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12 1949 STATION WAKKANAI NO. 7250



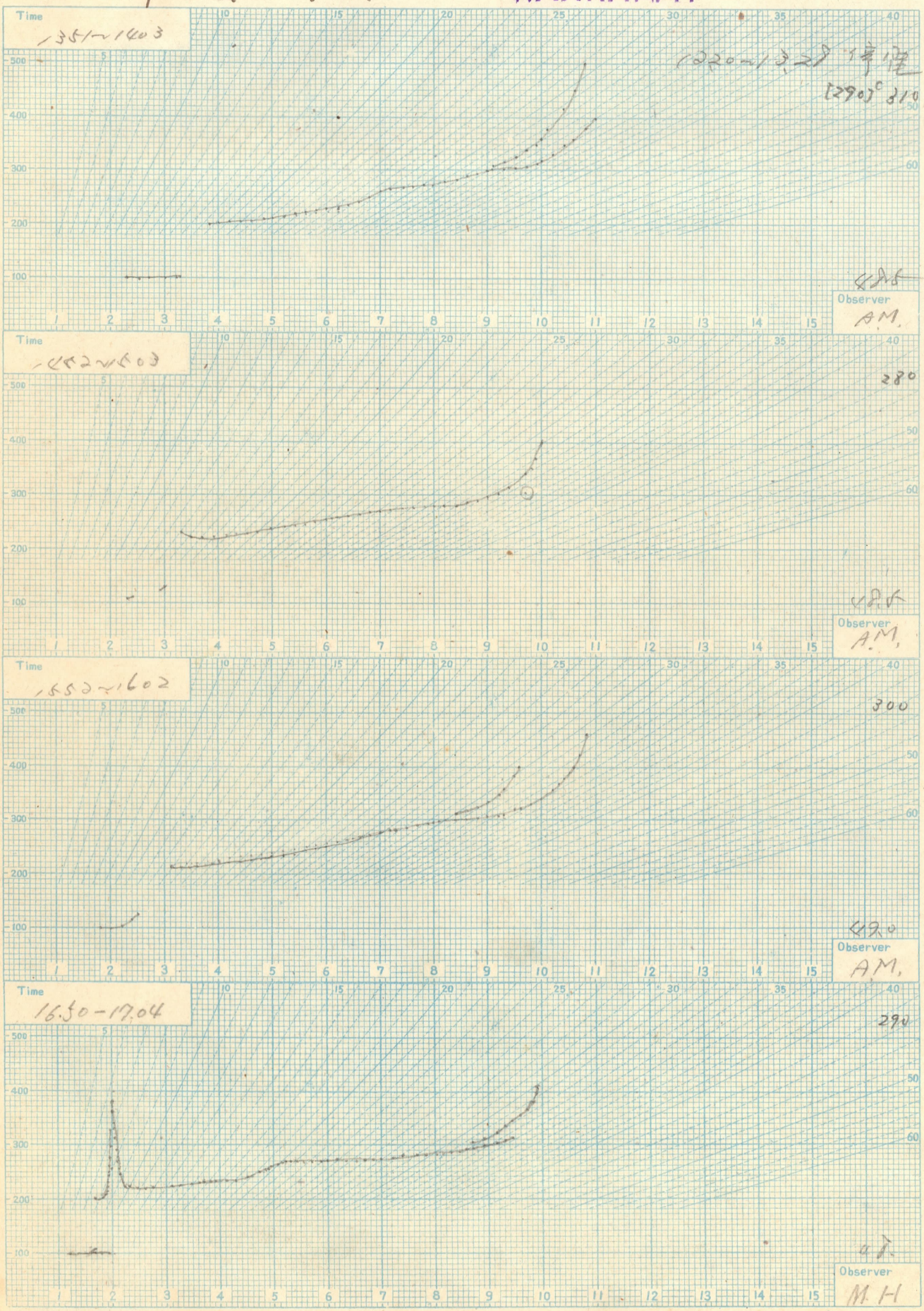
	1	2	3	4
$f°F_2$	(12.0)C			
$h'F_2$	210			
$f°F_1$	0			
$h'F_1$	0			
$f°E$	(3.2)			
$h'E$	100			
fE_s	< f_E			
fF_{min}	3.3			
fE_{min}	1.9			
3000 MUF				
M_{3000}	(3.1) C			
$f°F_2$	(13.3)P			
$h'F_2$	210			
$f°F_1$	0			
$h'F_1$	0			
$f°E$	B			
$h'E$	A(100)			
fE_s	B			
fF_{min}	3.6			
fE_{min}	2.3			
3000 MUF	42.0			
M_{3000}	(3.1)P			
$f°F_2$	12.4			
$h'F_2$	200			
$f°F_1$	0			
$h'F_1$	0			
$f°E$	B			
$h'E$	(100)			
fE_s	B			
fF_{min}	4.0			
fE_{min}	3.0			
3000 MUF	39.0			
M_{3000}	3.4			
$f°F_2$	11.7			
$h'F_2$	210			
$f°F_1$	0			
$h'F_1$	0			
$f°E$	B			
$h'E$	A(100)			
fE_s	4.0			
fF_{min}	3.6			
fE_{min}	2.4 3.0			
3000 MUF	38.0			
M_{3000}	3.2			

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12 1949 STATION WAKKANAI NO 7251



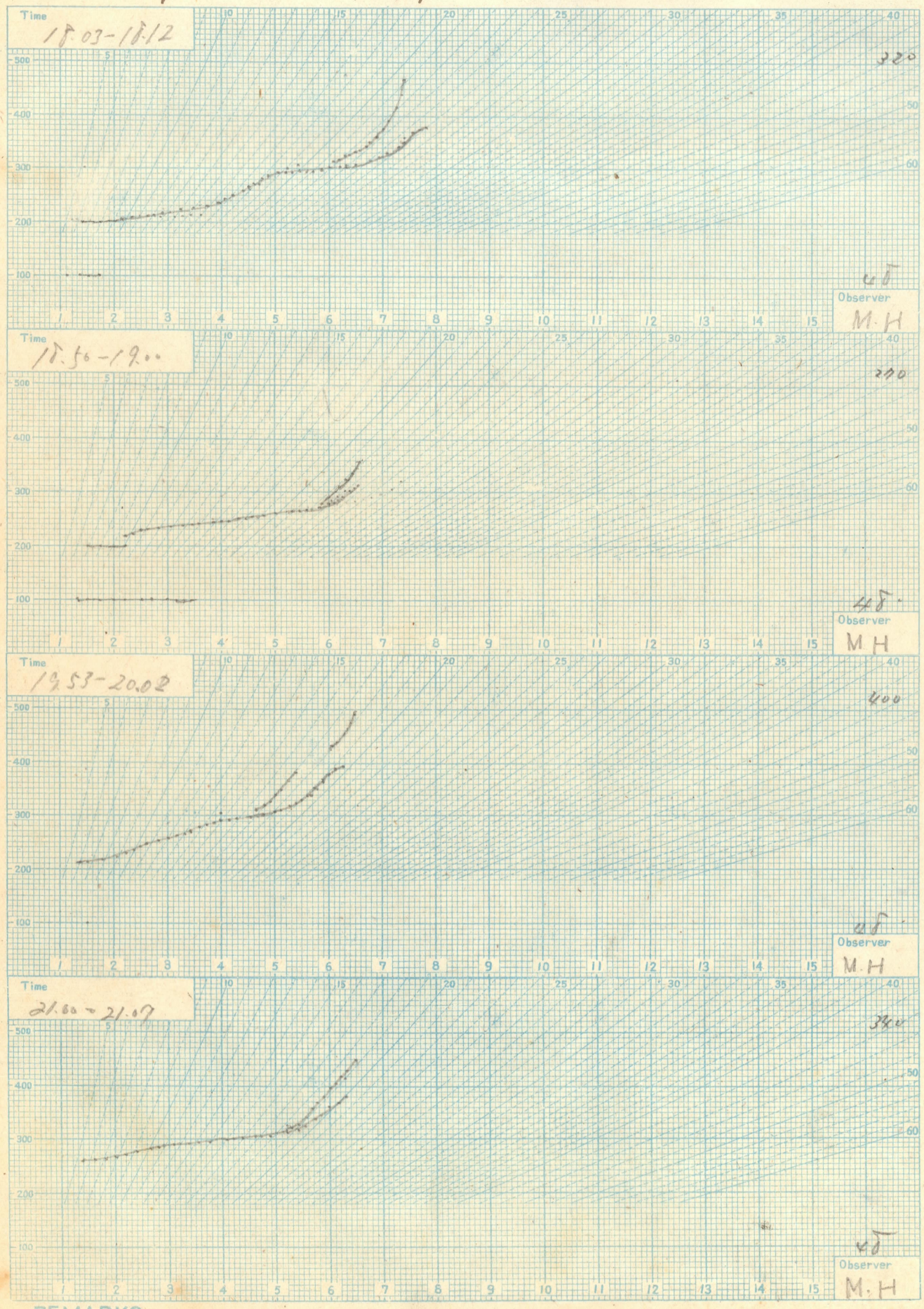
$f°F_2$	[1.3]c	10.7		
$h'F_2$	[2.80]c	270		
$f°F_1$	c	L		
$h'F_1$	c	200		
$f°E$	c	B		
$h'E$	c	A		
fE_s	c	B		
fF_{min}	[3.7]c	3.8		
fE_{min}	[2.7]c	2.3		
3000 MUF		33.1		
M_{3000}	[3.4]c	3.0		
$f°F_2$	10.1			
$h'F_2$	280			
$f°F_1$	L			
$h'F_1$	220			
$f°E$	(3.2)	B		
$h'E$	(110)			
fE_s	B			
fF_{min}	3.3			
fE_{min}	(2.3)			
3000 MUF		33.X		
M_{3000}	3.3			
$f°F_2$	9.7			
$h'F_2$	210			
$f°F_1$	Q			
$h'F_1$	Q			
$f°E$	2.6			
$h'E$	100			
fE_s	B			
fF_{min}	3.1			
fE_{min}	1.8			
3000 MUF		31.0		
M_{3000}	3.1			
$f°F_2$	10.0			
$h'F_2$	270			
$f°F_1$	L			
$h'F_1$	220			
$f°E$	2.0			
$h'E$	A			
fE_s	2.0			
fF_{min}	2.0			
fE_{min}	1.2			
3000 MUF		32.0		
M_{3000}	3.2			

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12 1949 STATION WAKKANAI NO 7252



$f°F_2$	7.4			
$h'F_2$	290			
$f°F_1$	Q	L		
$h'F_1$	Q	200		
$f°E$		B		
$h'E$		B		
fE_s	1.7			
fF_{min}	1.4			
fE_{min}	1.4			
3000 MUF	22.8			
M_{3000}	3.0			

$f°F_2$	6.7			
$h'F_2$	220			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	3.5			
fF_{min}	A			
fE_{min}	1.3			
3000 MUF	22.3			
M_{3000}	3.3			

$f°F_2$	6.6			
$h'F_2$	210			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	E			
fF_{min}	1.3			
fE_{min}	E			
3000 MUF	18.0			
M_{3000}	2.7			

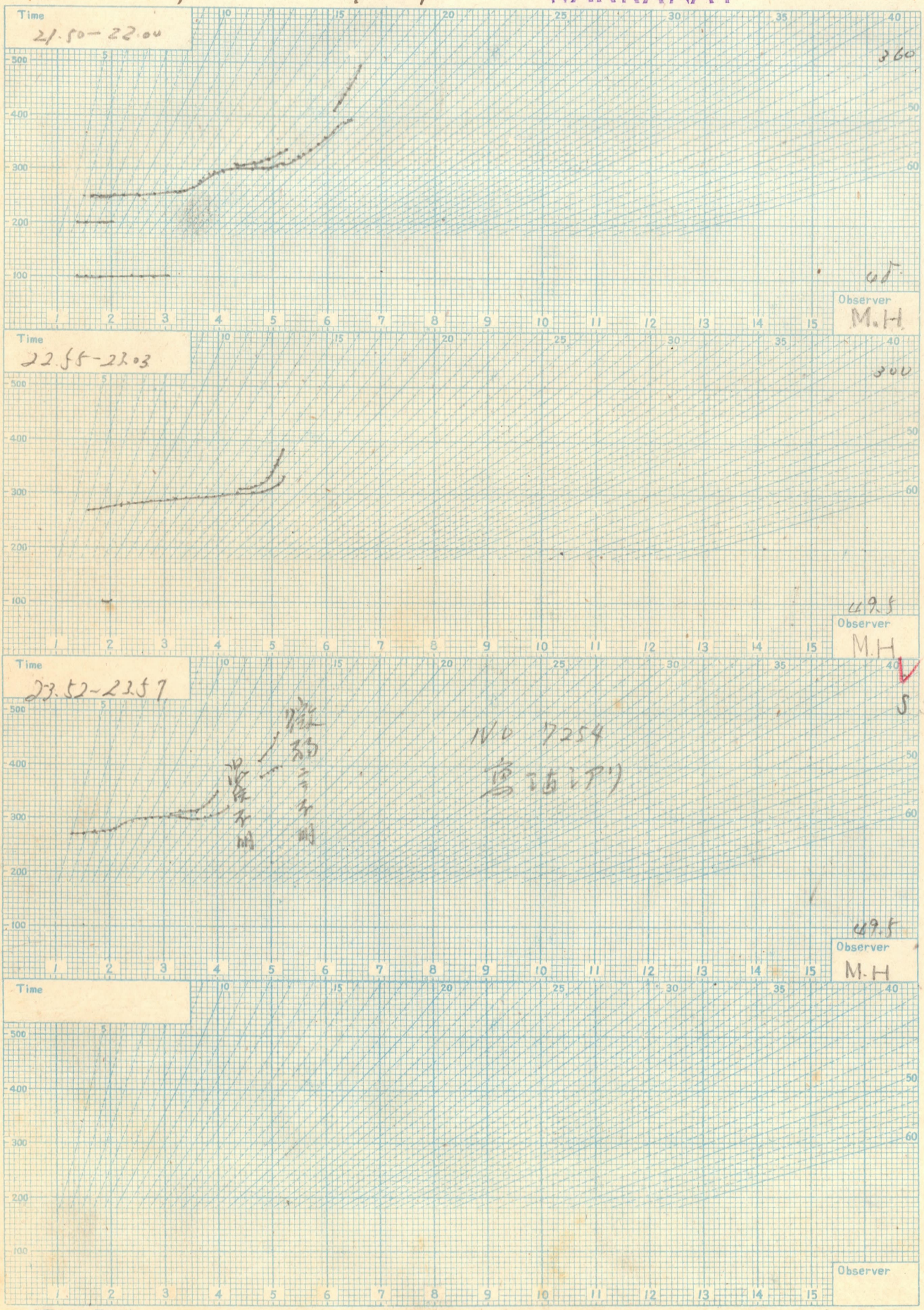
$f°F_2$	6.7			
$h'F_2$	260			
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	E			
fF_{min}	1.4			
fE_{min}	E			
3000 MUF	19.0			
M_{3000}	2.8			

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 12 1949 STATION WAKKANAI NO 7253



$f°F_2$	6.7	$f°F_2$	5.3
$h'F_2$	250	$h'F_2$	270
$f°F_1$		$f°F_1$	
$h'F_1$		$h'F_1$	
$f°E$		$f°E$	
$h'E$		$h'E$	
fE_s	3.0	fE_s	(2.0)
fF_{min}	1.6	fF_{min}	1.6
fE_{min}	1.4	fE_{min}	(1.8)
3000 MUF	18.6	3000 MUF	17.0
M_{3000}	2.7	M_{3000}	3.2

$f°F_2$	5.1	$f°F_2$	
$h'F_2$	270	$h'F_2$	
$f°F_1$		$f°F_1$	
$h'F_1$		$h'F_1$	
$f°E$		$f°E$	
$h'E$		$h'E$	
fE_s	E	fE_s	
fF_{min}	1.3	fF_{min}	
fE_{min}	E	fE_{min}	
3000 MUF	14.7	3000 MUF	
M_{3000}	2.8	M_{3000}	

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 13 1949 STATION WAKKANAI NO 7254

VIRTUAL HEIGHT IN KM

Time 2352~2357

Observer M.H.

$f°F_2$	5.2
$h'F_2$	280
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	14.7
M_{3000}	2.8

Time 0050~0100

0125~0150 1分毎

Observer 7.0

$f°F_2$	5.4
$h'F_2$	300
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	1.5
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	14.0
M_{3000}	2.6

Time 0229~0236

0151~0228 1分毎

Observer 7.0

$f°F_2$	[5.5]° 5.5
$h'F_2$	[280]° 260
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	C E
fF_{min}	C E
fE_{min}	C E
3000 MUF	16.7
M_{3000} [28]	3.0

Time 0253~0258

Observer 7.0

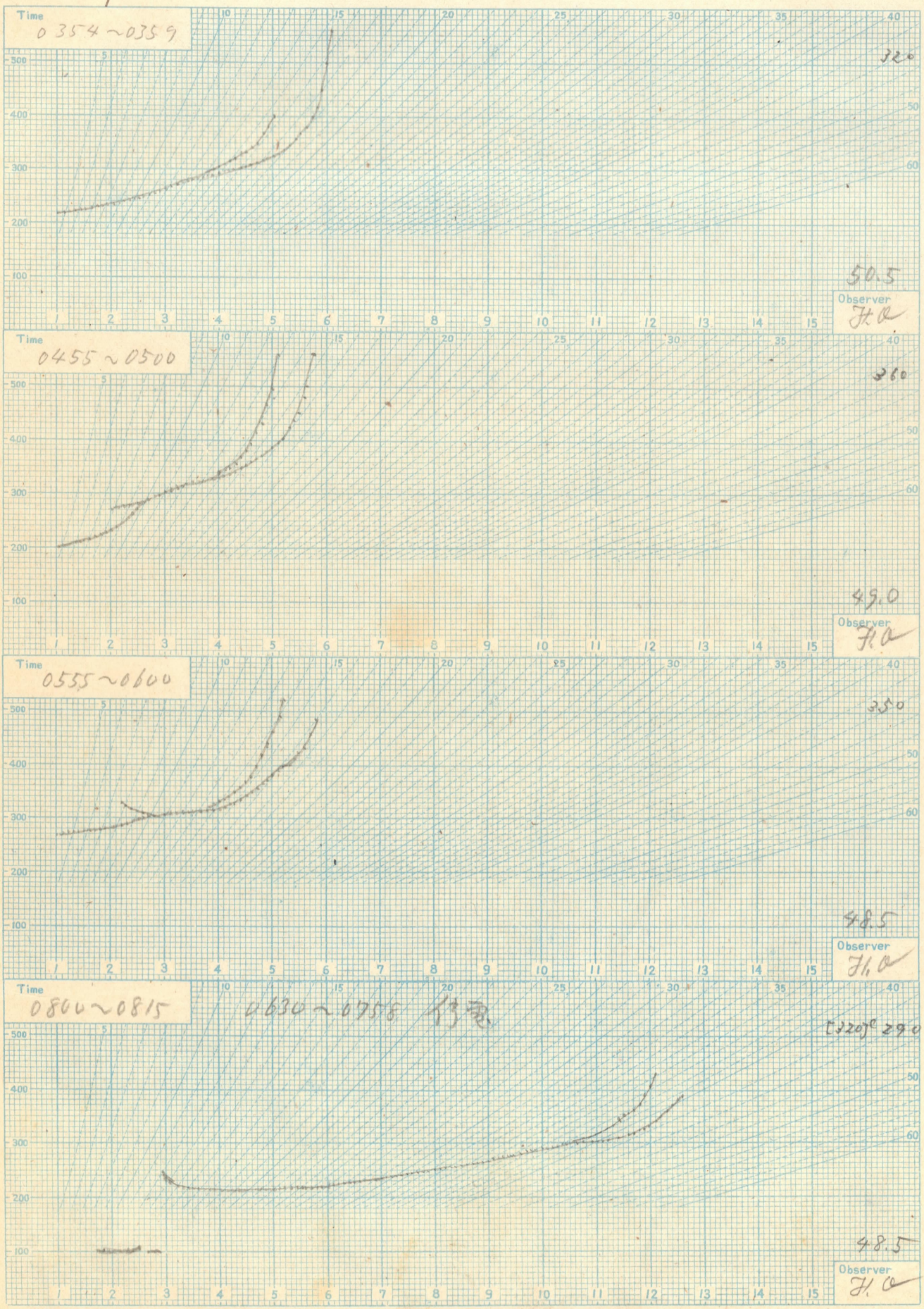
$f°F_2$	6.0
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	17.3
M_{3000}	2.8

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 13 1949 STATION WAKKANAI NO 7255



$f°F_2$	5.1	5.1	5.2	8.7s 12.2
$h'F_2$	220	(200)	270	(240)s 210
$f°F_1$			a	c a
$h'F_1$			a	c a
$f°E$			E	c (2.7)
$h'E$			E	c 100
fE_s	E	E	E	c 2.9
fF_{min}	E	E	E	c 2.9
fE_{min}	E	E	E	c 1.7
3000 MUF	15.9	14.3	14.8	89.0
M_{3000}	3.1	2.8	2.8	[2.9]s 3.1

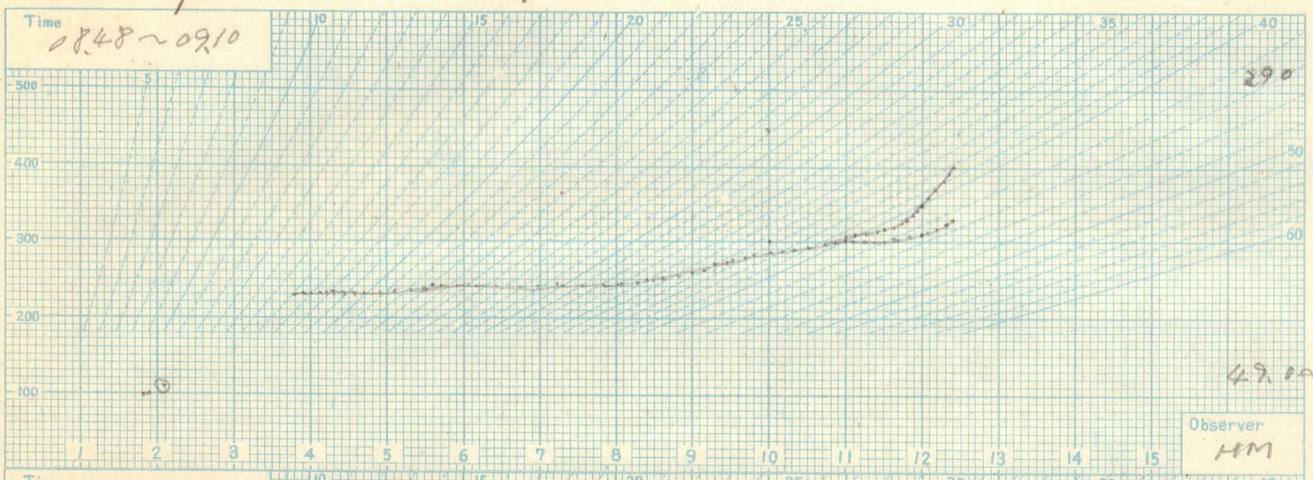
REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

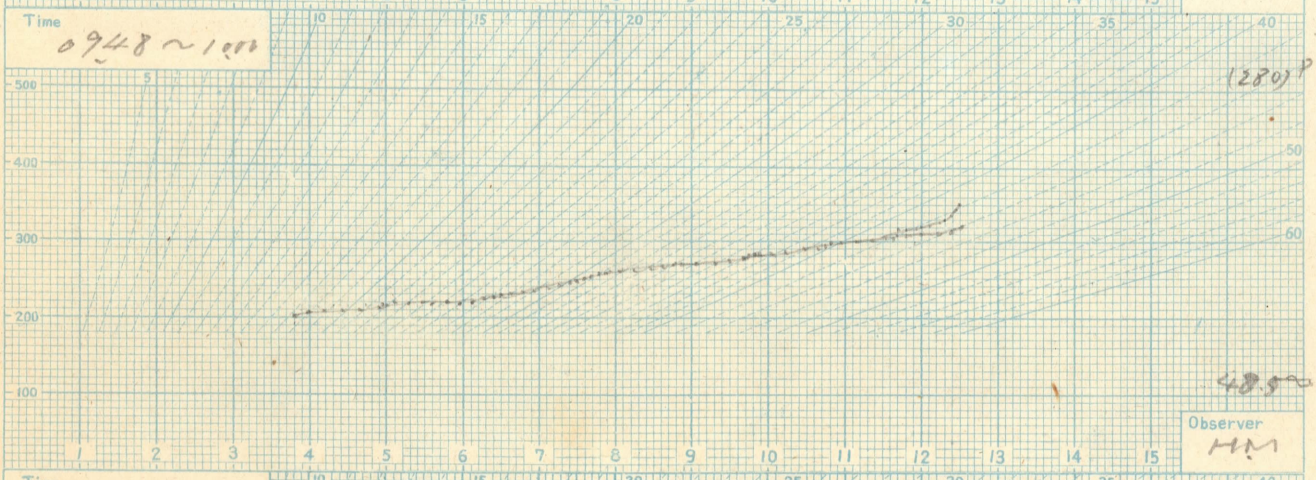
DATE Feb 13 1949 STATION WAKKANAI NO 7256

VIRTUAL HEIGHT IN KM



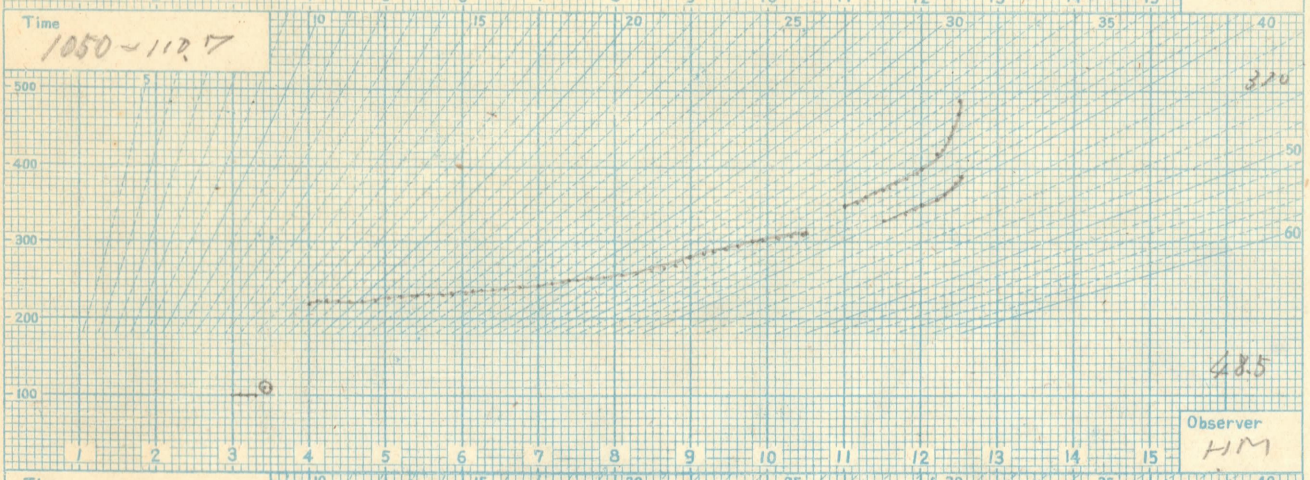
$f°F_2$	12.6
$h'F_2$	230
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	B
fE_s	B
fF_{min}	3.8
fE_{min}	1.8
3000 MUF	41.0
M_{3000}	3.2

VIRTUAL HEIGHT IN KM



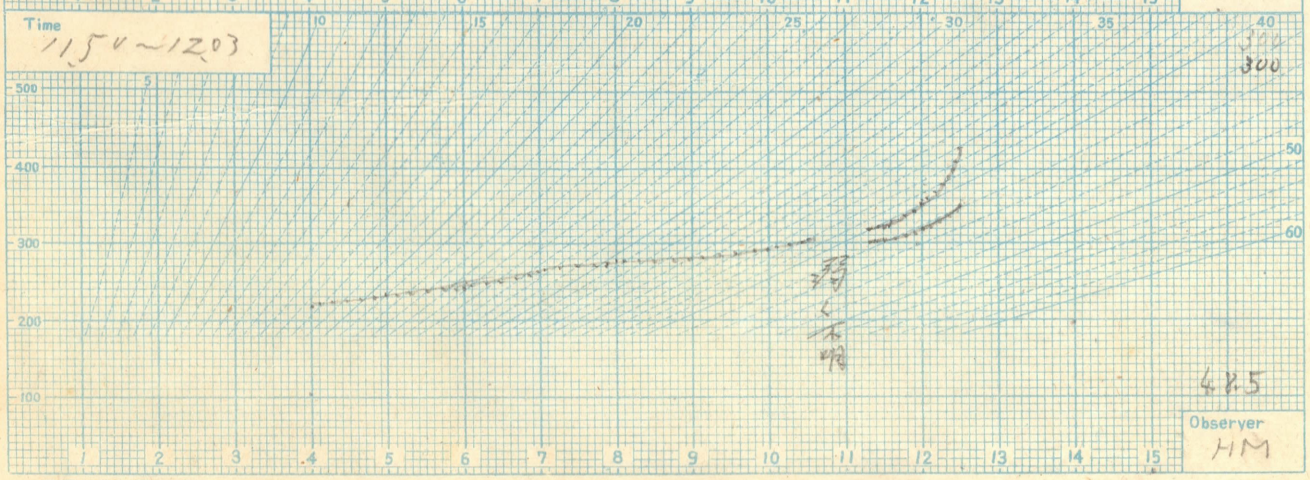
$f°F_2$	(12.8)P
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	B
fE_s	B
fF_{min}	3.8
fE_{min}	B
3000 MUF	42.5
M_{3000}	(3.3)P

VIRTUAL HEIGHT IN KM



$f°F_2$	12.5
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	A (100)
fE_s	B
fF_{min}	4.0
fE_{min}	3.0
3000 MUF	37.5
M_{3000}	3.0

VIRTUAL HEIGHT IN KM



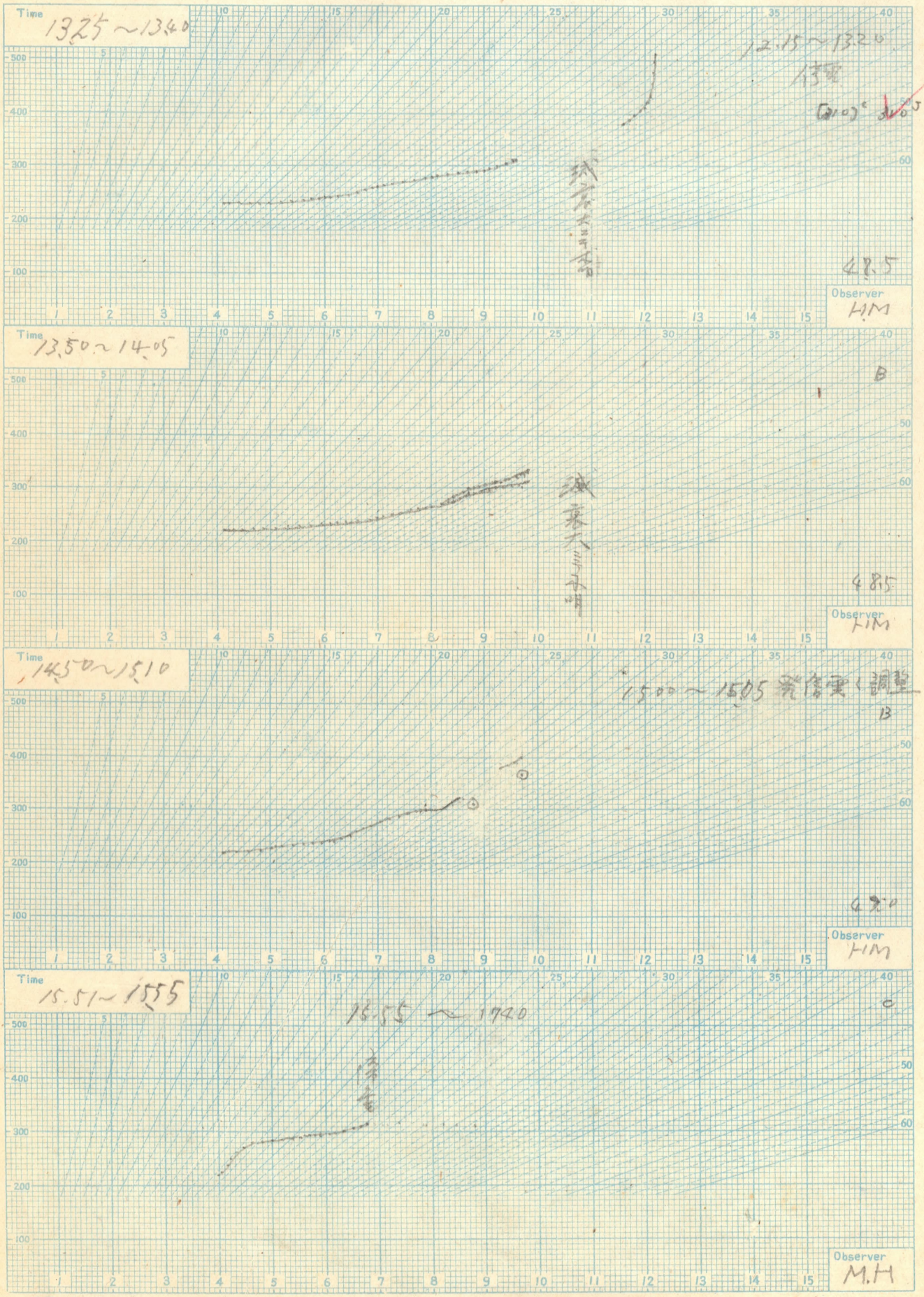
$f°F_2$	12.5
$h'F_2$	270
$f°F_1$	L
$h'F_1$	220
$f°E$	B
$h'E$	B
fE_s	B
fF_{min}	4.0
fE_{min}	B
3000 MUF	44.0
M_{3000}	3.2

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 13 1949 STATION WAKKANAI NO 7257

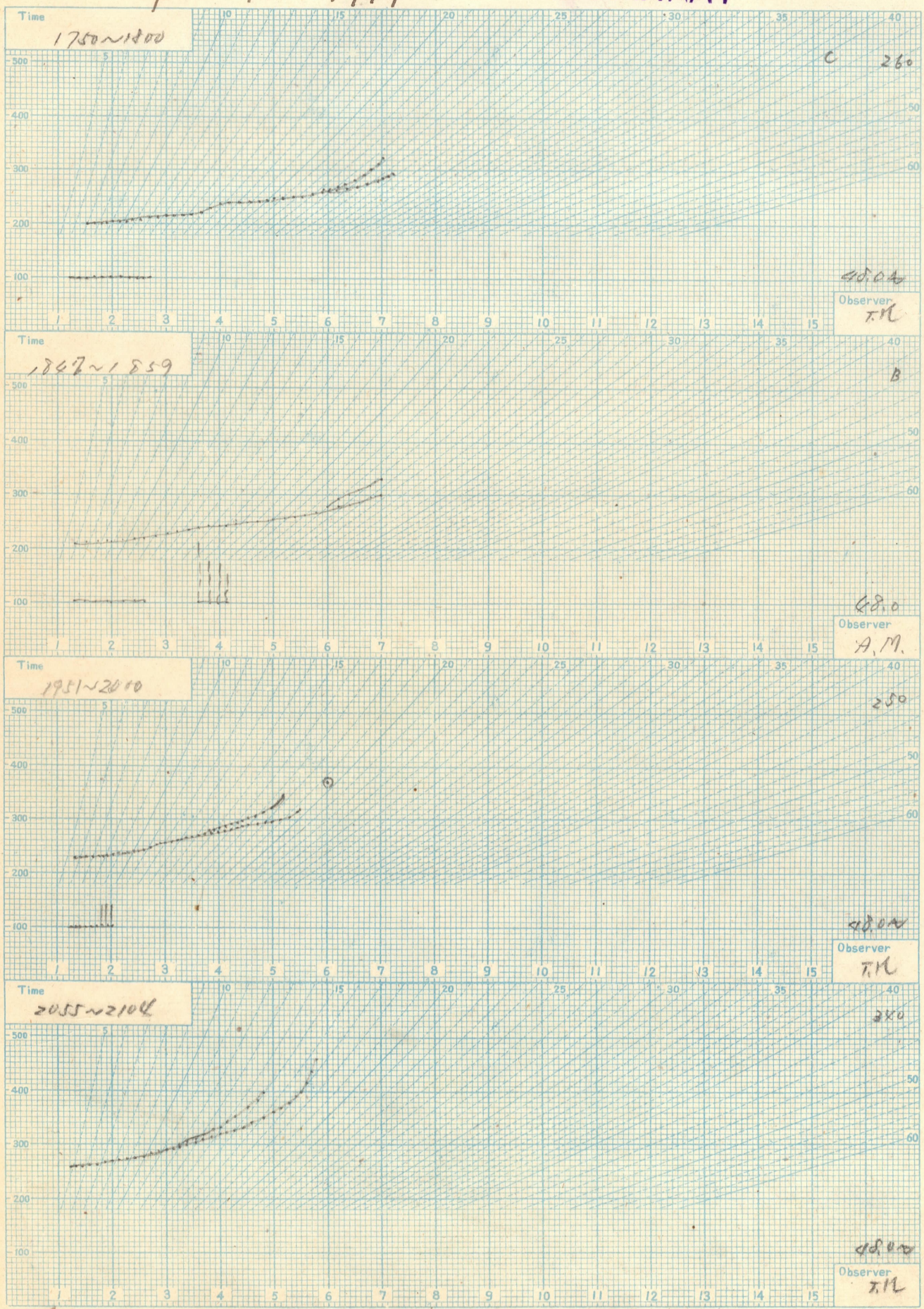


| | | |

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 13 1949 STATION WAKKANAI NO 7258



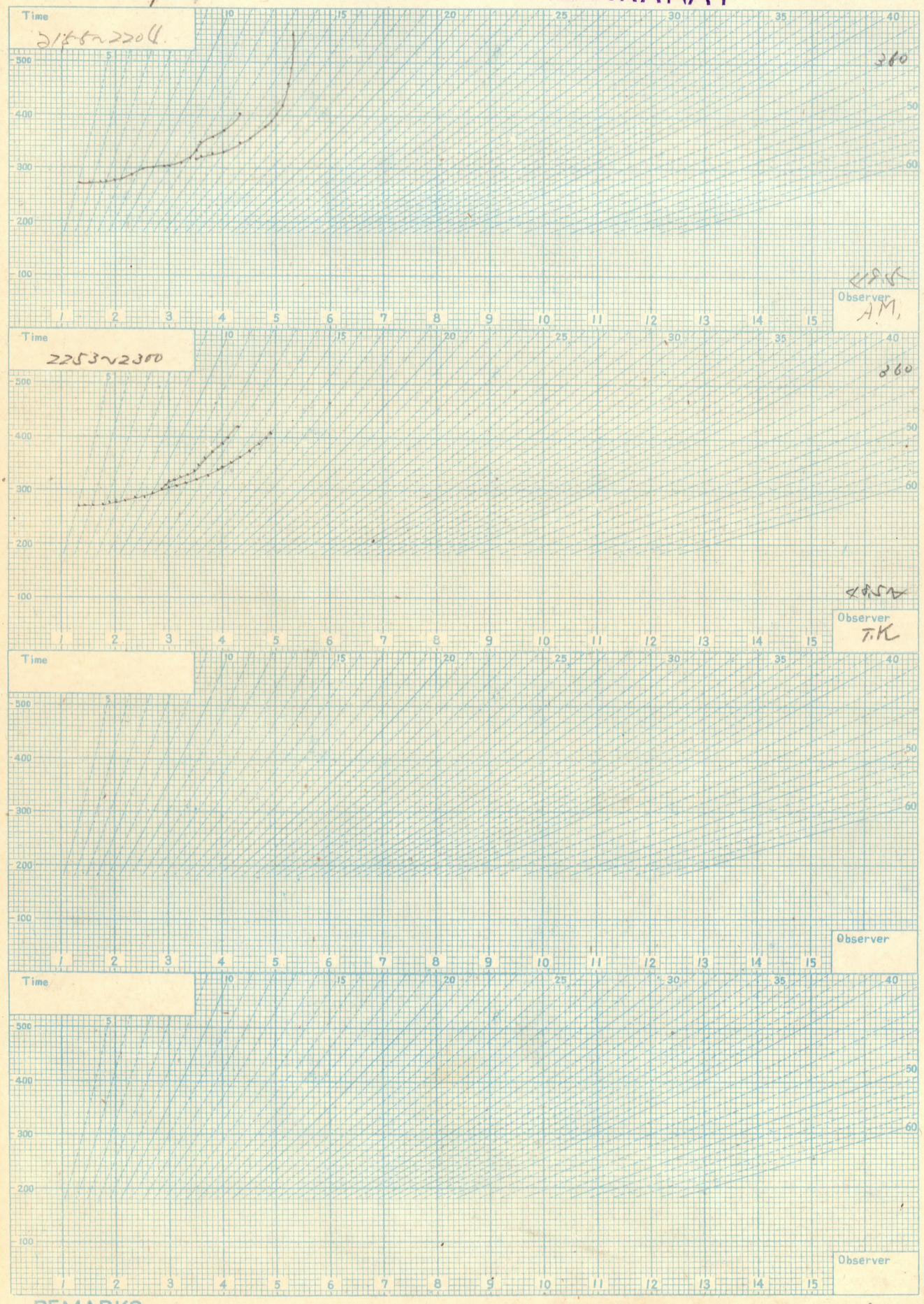
$f°F_2$	C	22
$h'F_2$	[260]C	280
$f°F_1$	C	L
$h'F_1$	[210]C	200
$f°E$	C	A
$h'E$	C	A
fE_s	C	2.7
fF_{min}	C	A
fE_{min}	C	1.2
3000 MUF		25.0
M_{3000}	C	3.4
$f°F_2$	B	
$h'F_2$		210
$f°F_1$		
$h'F_1$		
$f°E$		
$h'E$		
fE_s		4.1 F
fF_{min}		1.3
fE_{min}		1.3
3000 MUF		
M_{3000}		B
$f°F_2$		3.3
$h'F_2$		230
$f°F_1$		
$h'F_1$		
$f°E$		
$h'E$		
fE_s		2.0 F
fF_{min}		1.3
fE_{min}		1.2
3000 MUF		12.7
M_{3000}		3.3
$f°F_2$		3.0
$h'F_2$		260
$f°F_1$		
$h'F_1$		
$f°E$		
$h'E$		
fE_s		F
fF_{min}		1.2
fE_{min}		F
3000 MUF		15.0
M_{3000}		3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 13 1949 STATION WAKKANAI NO 7259



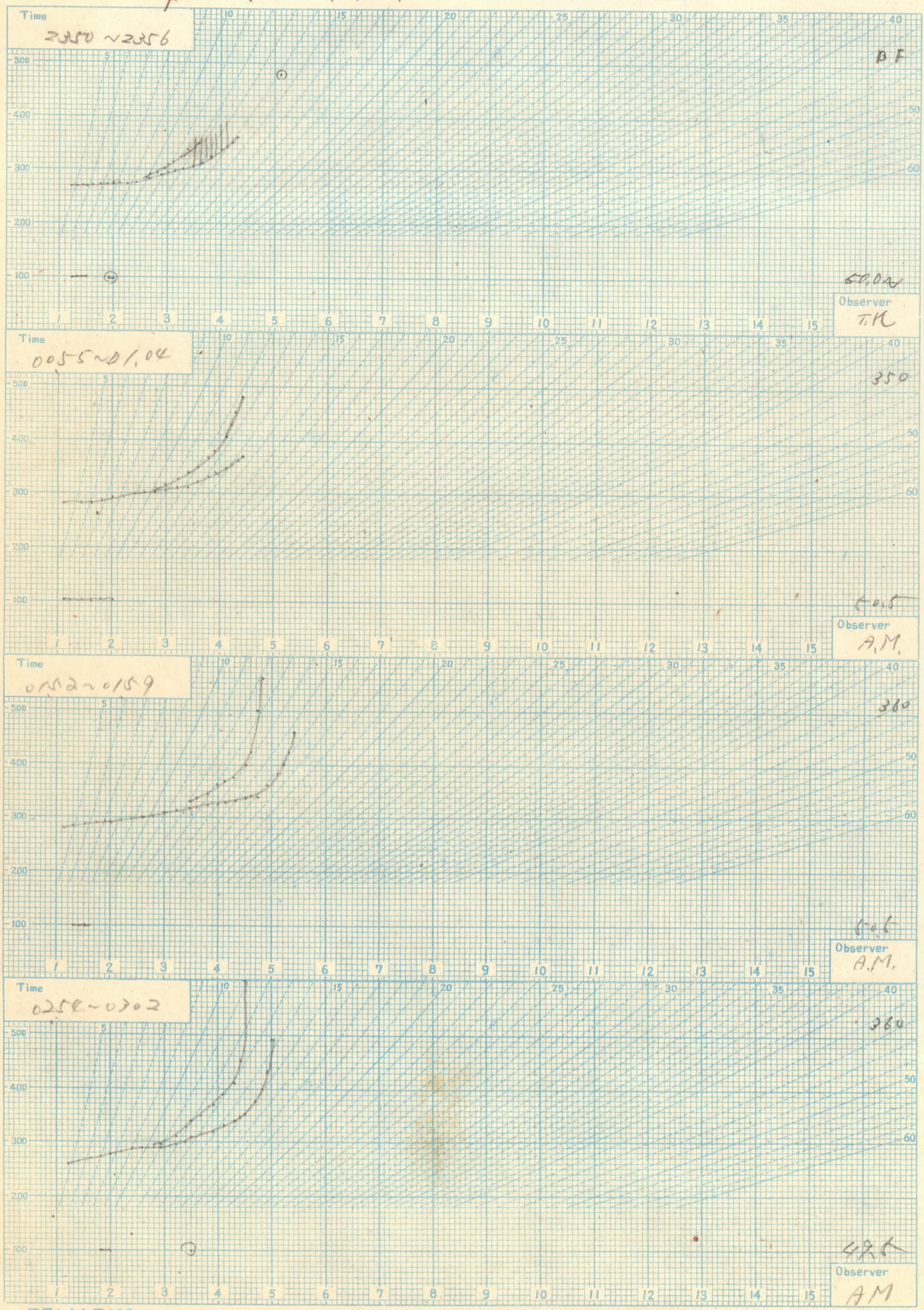
$f°F_2$	4.6	$f°F_2$	4.4	$f°F_2$
$h'F_2$	270	$h'F_2$	270	$h'F_2$
$f°F_1$		$f°F_1$		$f°F_1$
$h'F_1$		$h'F_1$		$h'F_1$
$f°E$		$f°E$		$f°E$
$h'E$		$h'E$		$h'E$
fE_s	E	fE_s	E	fE_s
fF_{min}	1.3	fF_{min}	1.3	fF_{min}
fE_{min}	E	fE_{min}	E	fE_{min}
3000 MUF	13.3	3000 MUF	12.7	3000 MUF
M_{3000}	2.8	M_{3000}	2.9	M_{3000}

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 14 1949 STATION WAKKANAI NO 7260

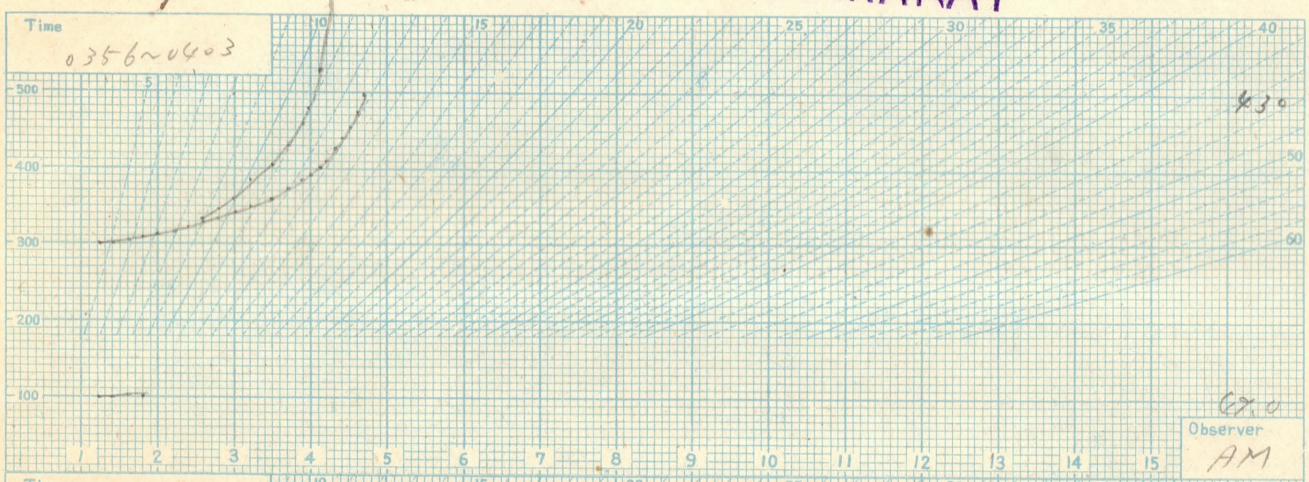


$f°F_2$	BF
$h'F_2$	270
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
ff_{min}	1.2
fE_{min}	1.2
3000 MUF	
M_{3000}	BF
$f°F_2$	4.5
$h'F_2$	280
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
ff_{min}	1.1
fE_{min}	1.1
3000 MUF	12.7
M_{3000}	2.8
$f°F_2$	4.8
$h'F_2$	280
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	1.6
ff_{min}	1.1
fE_{min}	1.3
3000 MUF	14.0
M_{3000}	2.9
$f°F_2$	4.5
$h'F_2$	260
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
ff_{min}	1.2
fE_{min}	1.8
3000 MUF	13.0
M_{3000}	2.8

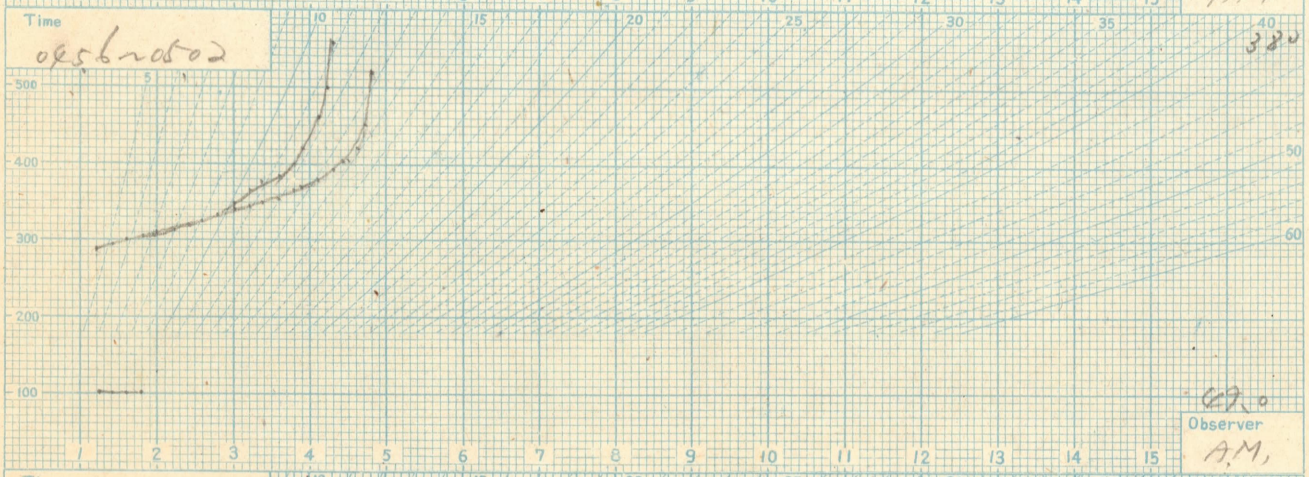
IONOSPHERIC RECORD

135°E MEAN TIME

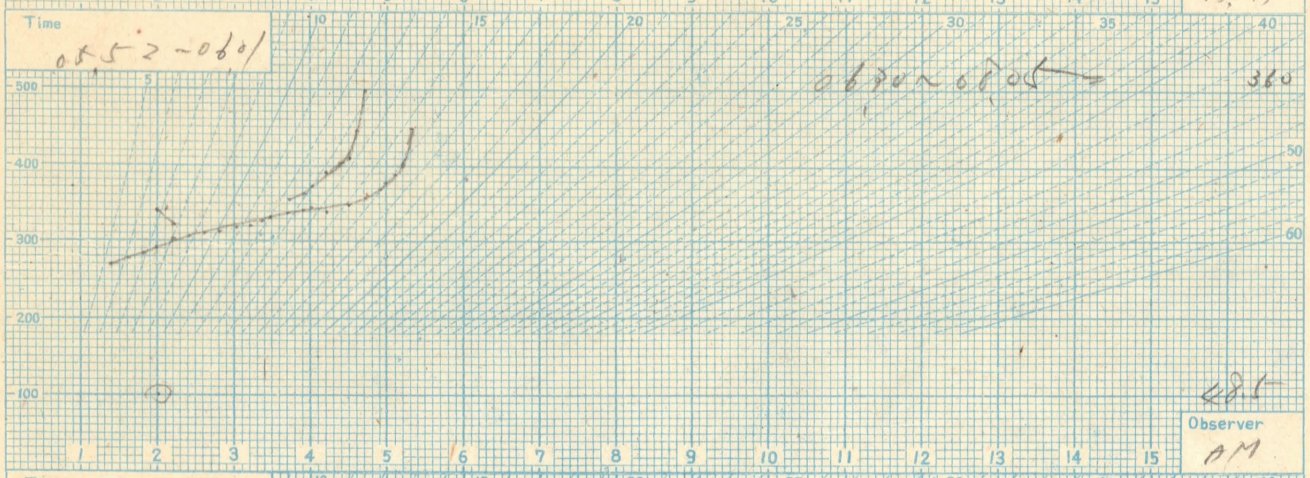
DATE Feb 65° 14. 1949 STATION WAKKANAI NO 7261.



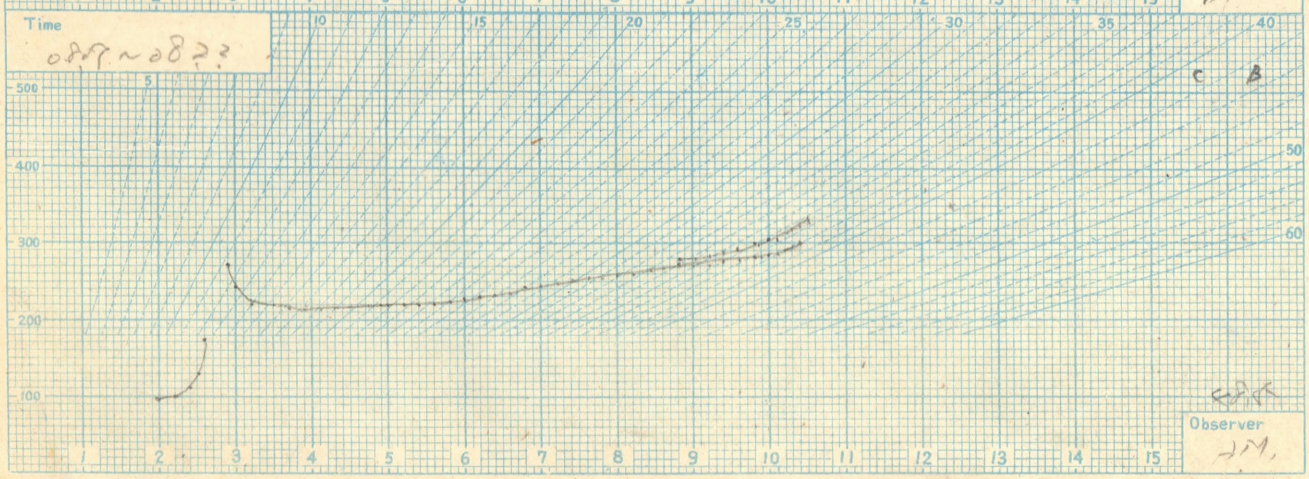
f^oF_2	4.3
$h'F_2$	300
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.8
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	11.0
M_{3000}	2.5



f^oF_2	4.3
$h'F_2$	290
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.8
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	11.8
M_{3000}	2.7



f^oF_2	4.7
$h'F_2$	270
f^oF_1	a
$h'F_1$	a
f^oE	E
$h'E$	E
fE_s	B
fF_{min}	1.4
fE_{min}	B
3000 MUF	13.7
M_{3000}	2.9



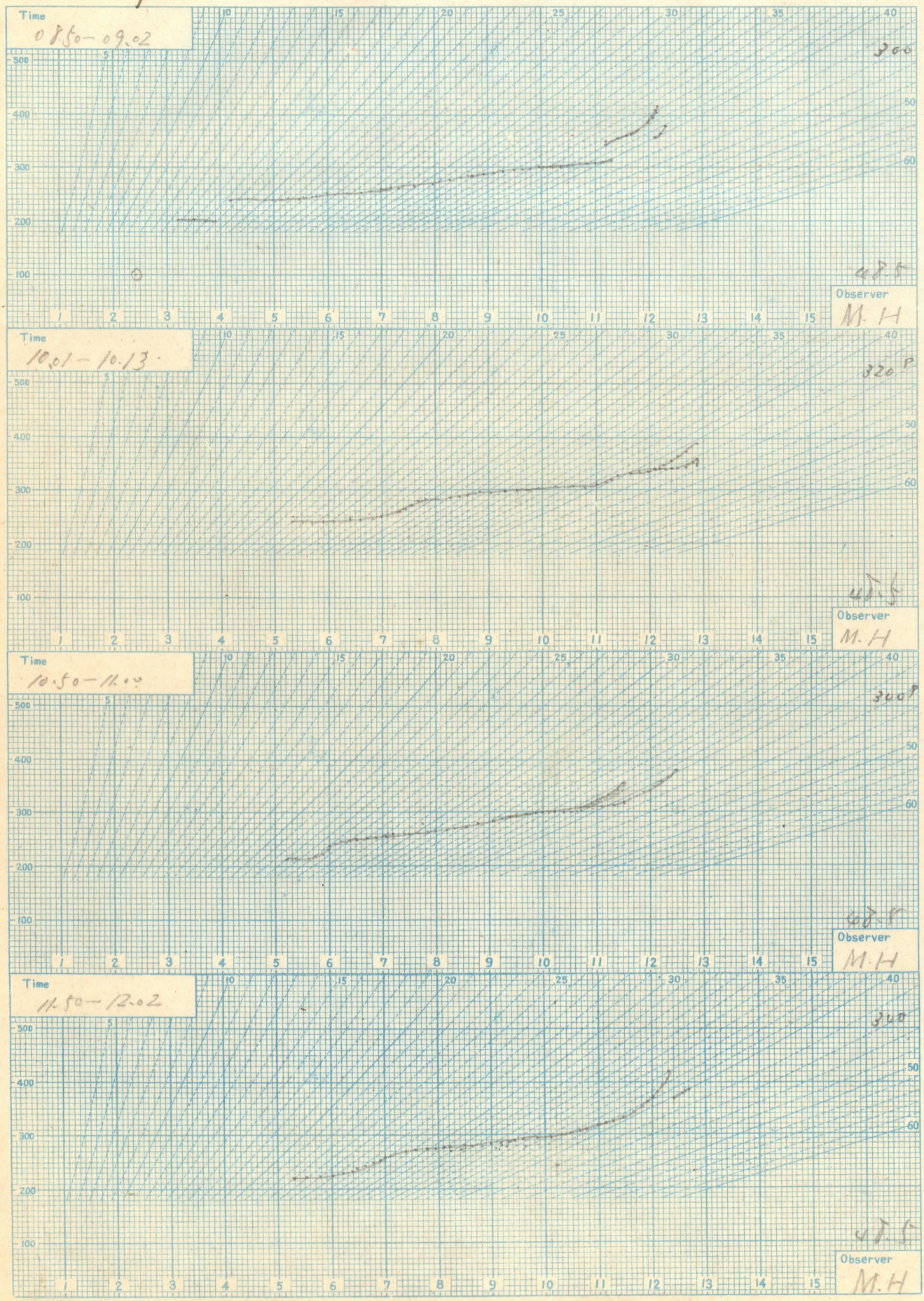
f^oF_2	C	B
$h'F_2$	[240f	210
f^oF_1	C	a
$h'F_1$	C	a
f^oE	C	2.6
$h'E$	C	100
fE_s	C	cf_E
fF_{min}	[2.2f	2.9
fE_{min}	C	2.0
3000 MUF		
M_{3000}	C	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 14. 1949 STATION WAKKANAI NO 7262



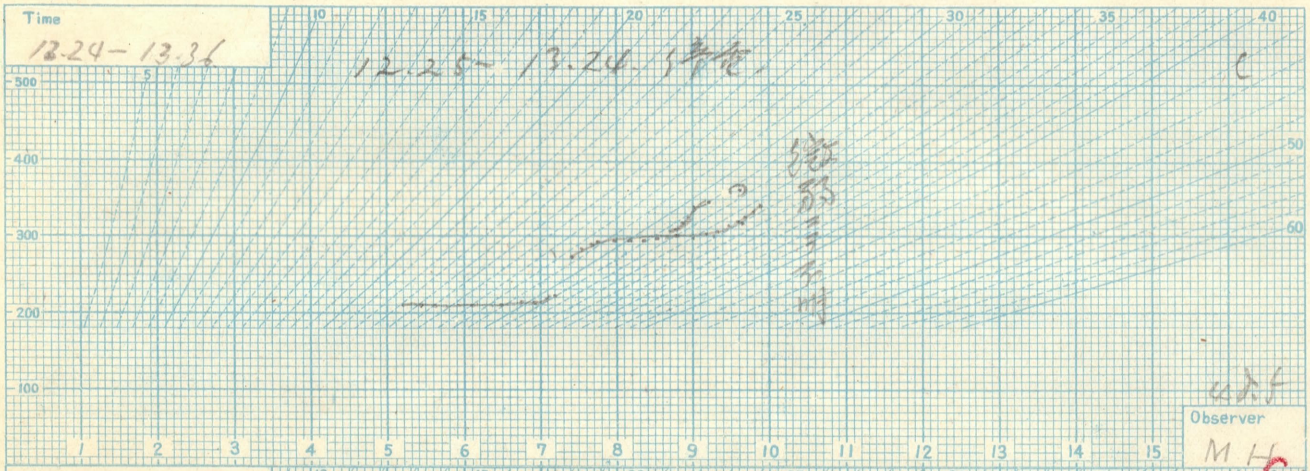
$f°F_2$	12.3	13.5 P	12.0 P	12.4
$h'F_2$	240	280	250	270
$f°F_1$	0	0 L	L	0 L
$h'F_1$	0	0 240	210	0 220
$f°E$	B	B	B	B
$h'E$	B	B	B	B
fE_s	B	B	B	B
fF_{min}	4.2	5.3	5.2	5.3
fE_{min}	B	B	B	B
3000 MUF	38.0	41.0	38.5	39.5
M_{3000}	3.0	3.0 P	3.2 P	3.1

REMARKS

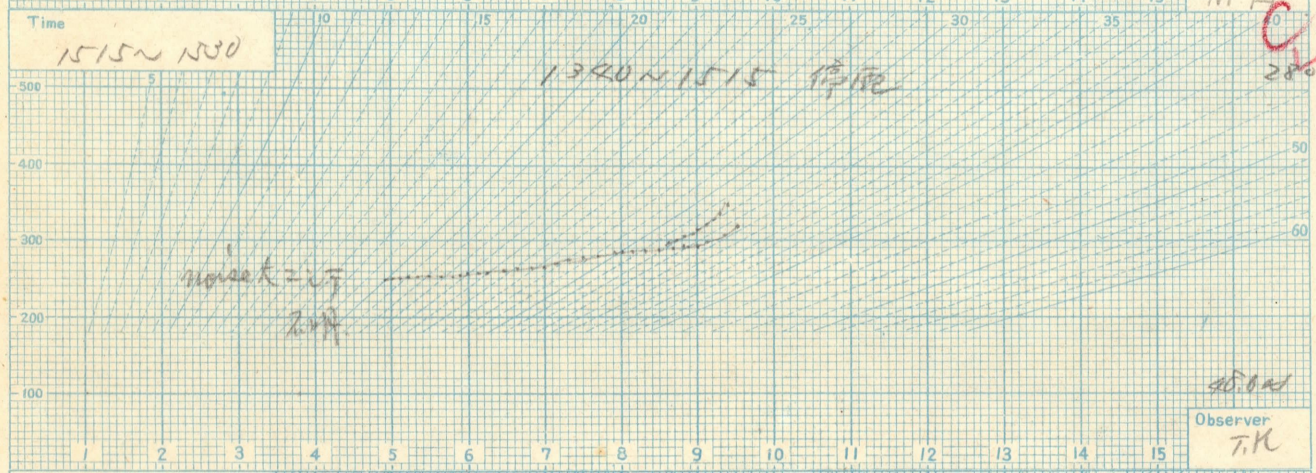
IONOSPHERIC RECORD

135°E MEAN TIME

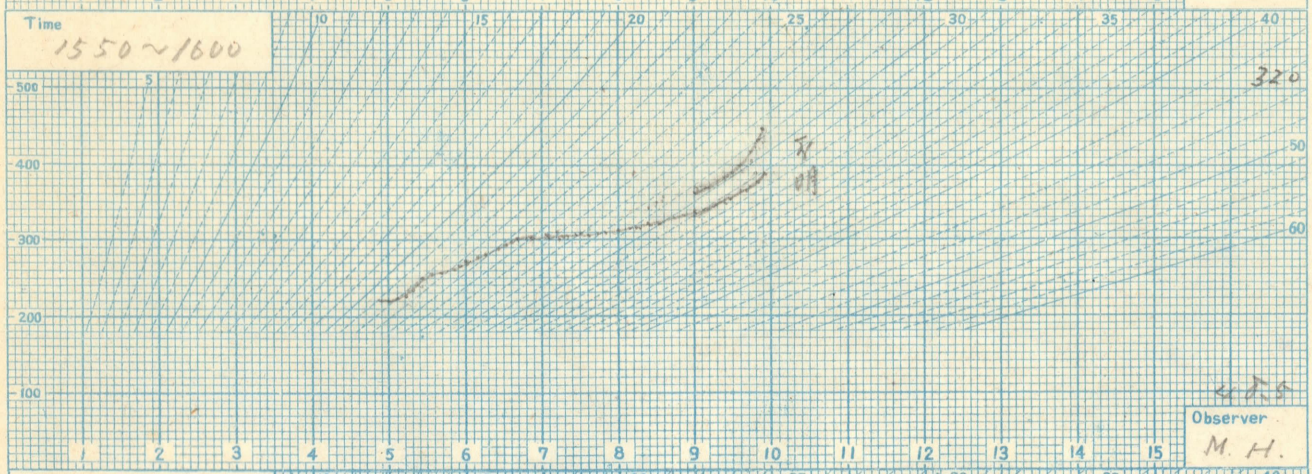
DATE Feb 14, 1949 STATION WAKKANAI NO 7263



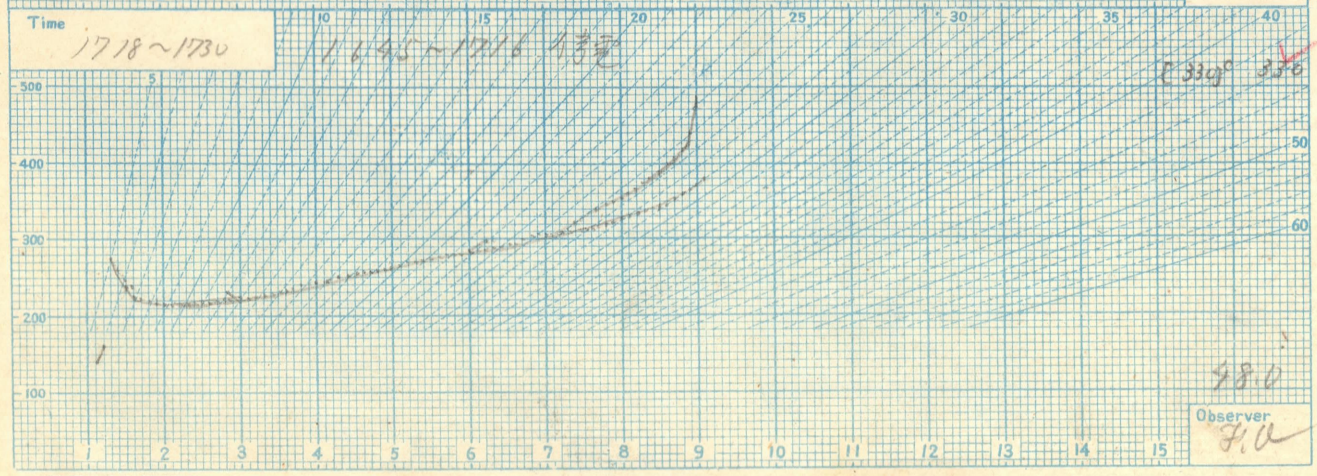
f^oF_2	C	1300
$h'F_2$	[290]^c	300
f^oF_1	C	L
$h'F_1$	C	210
f^oE	C	B
$h'E$	C	B
fE_s	C	B
fF_{min}	[5.2]^c	5.2
fE_{min}	C	B
3000 MUF		
M_{3000}	C	B



f^oF_2	9.5	
$h'F_2$	250	
f^oF_1	0	
$h'F_1$	0	
f^oE	B	
$h'E$	B	
fE_s	B	
fF_{min}	4.9	
fE_{min}	B	
3000 MUF	32.0	
M_{3000}	3.3	



f^oF_2	10.0	
$h'F_2$	300	
f^oF_1	L	
$h'F_1$	220	
f^oE	B	
$h'E$	B	
fE_s	B	
fF_{min}	4.9	
fE_{min}	B	
3000 MUF	29.9	
M_{3000}	2.9	



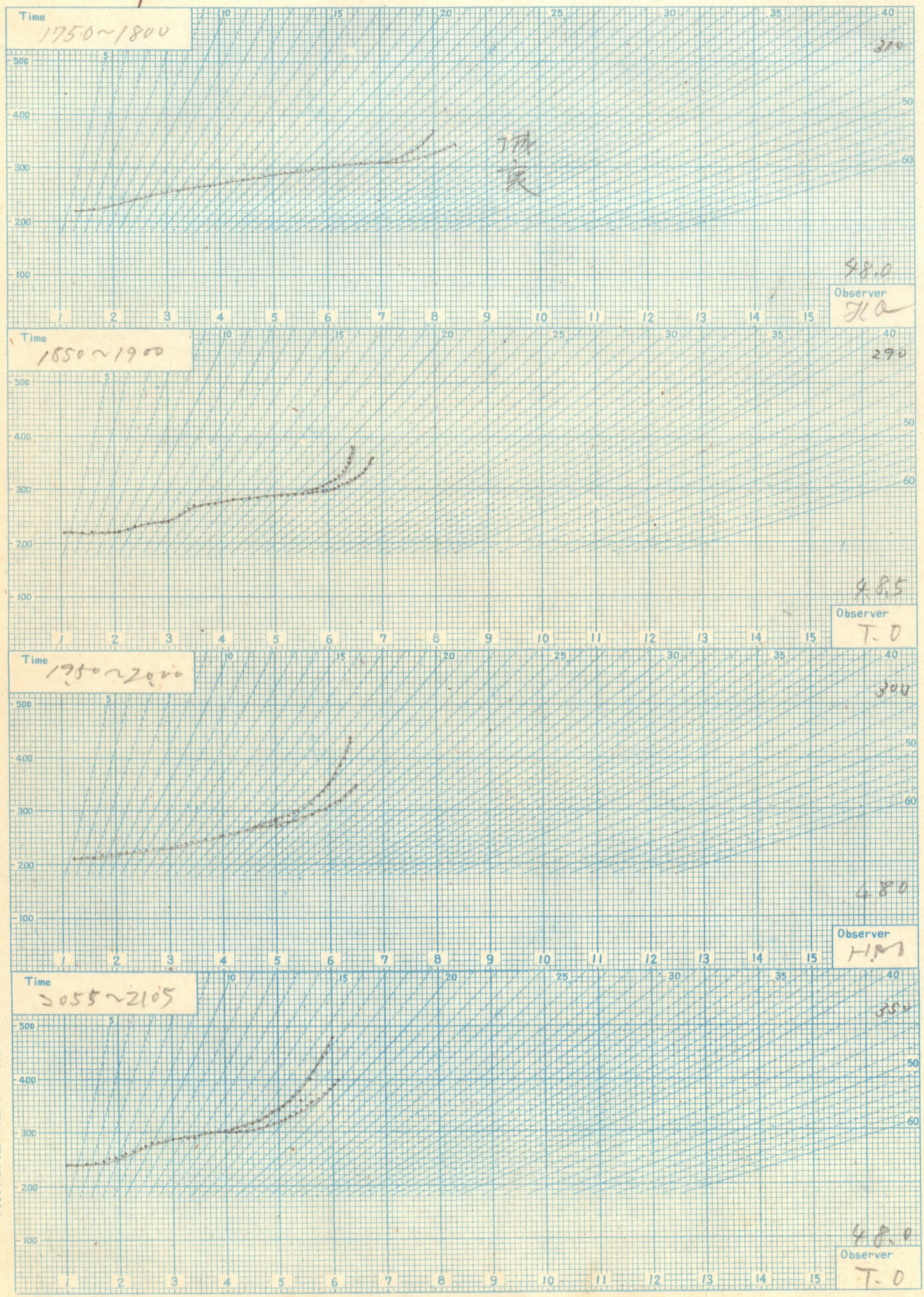
f^oF_2	[9.3]^c	9.0
$h'F_2$	[240]^c	210
f^oF_1	C	0
$h'F_1$	C	0
f^oE	C	1.2
$h'E$	C	E
fE_s	C	$<fE$
fF_{min}	[2.5]^c	1.3
fE_{min}	C	1.1
3000 MUF		26.8
M_{3000}	[2.9]^c	2.9

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 14 1949 STATION WAKKANAI NO 7264



$f°F_2$	8.1
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	E
ff_{min}	1.3
fE_{min}	E
3000 MUF	26.1
M_{3000}	3.2

$f°F_2$	6.5
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	22.0
M_{3000}	3.3

$f°F_2$	6.8
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	1.2
fE_{min}	E
3000 MUF	20.0
M_{3000}	3.1

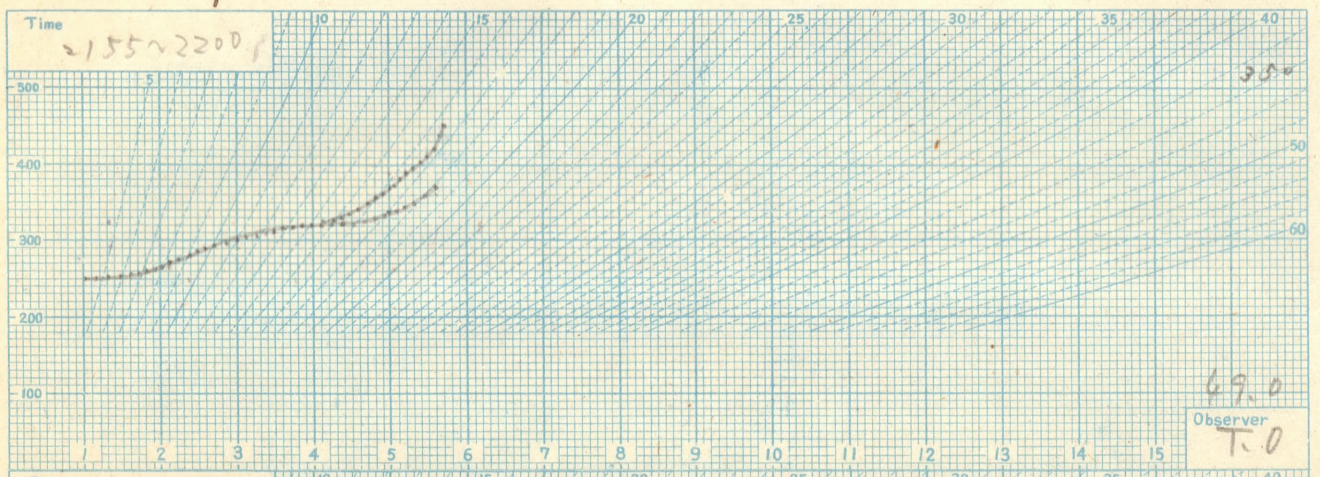
$f°F_2$	6.1
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	17.0
M_{3000}	2.7

REMARKS

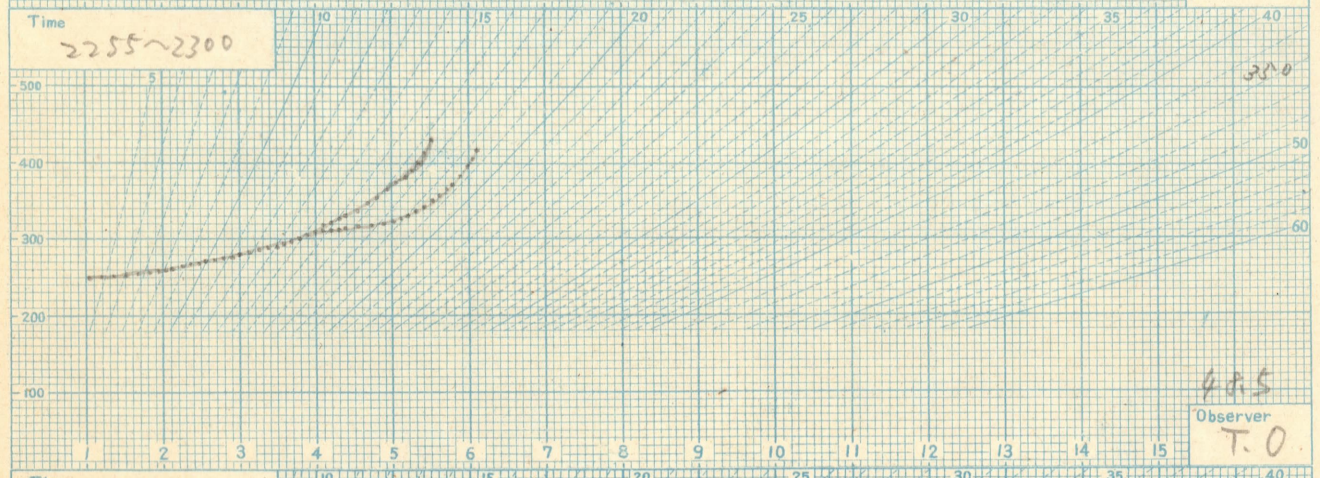
IONOSPHERIC RECORD

135°E MEAN TIME

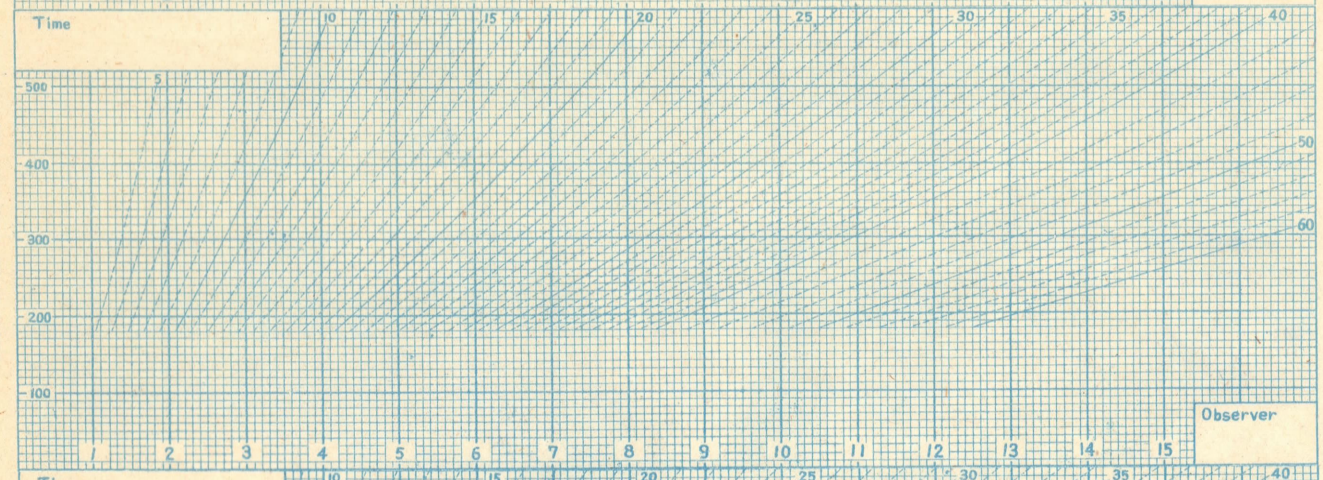
DATE Feb 14, 1949 STATION WAKKANAI NO 7265



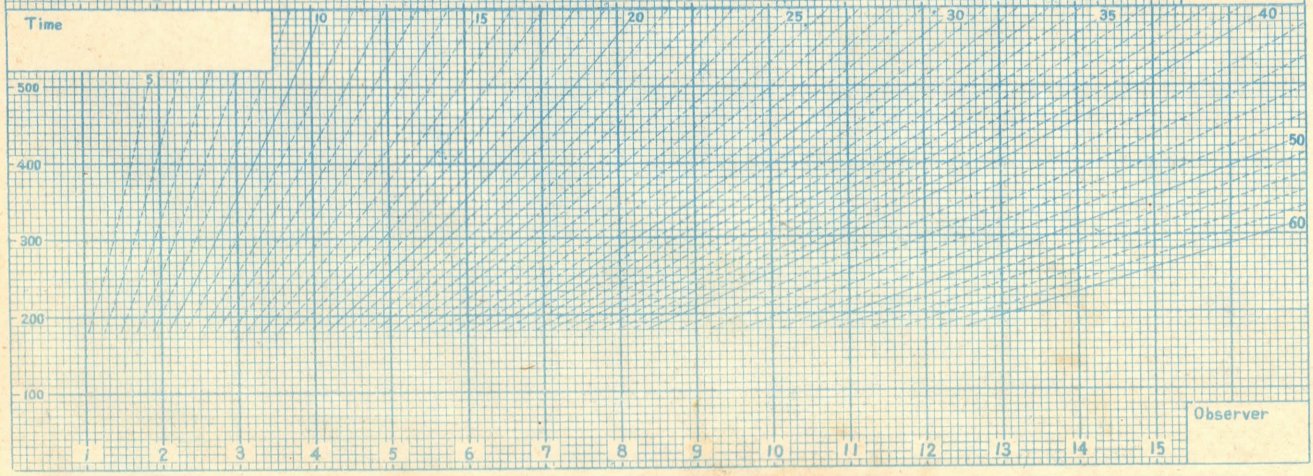
$f°F_2$ 5.7
$h'F_2$ 250
$f°F_1$
$h'F_1$
$f°E$
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 16.8
M_{3000} 2.9



$f°F_2$ 5.6
$h'F_2$ 250
$f°F_1$
$h'F_1$
$f°E$
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 16.5
M_{3000} 2.9



$f°F_2$
$h'F_2$
$f°F_1$
$h'F_1$
$f°E$
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}



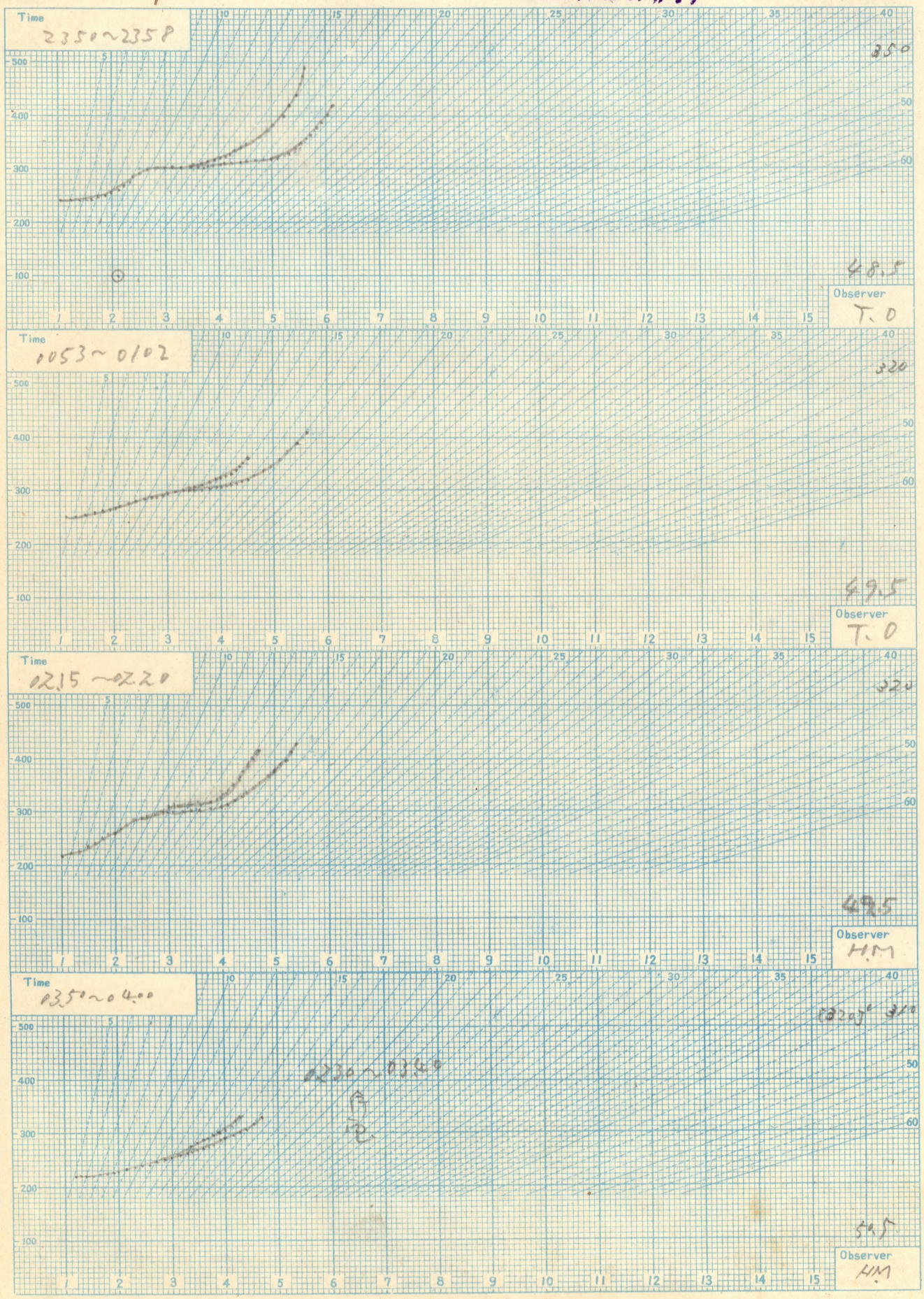
$f°F_2$
$h'F_2$
$f°F_1$
$h'F_1$
$f°E$
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 15 1949 STATION WAKKANAI NO 7266

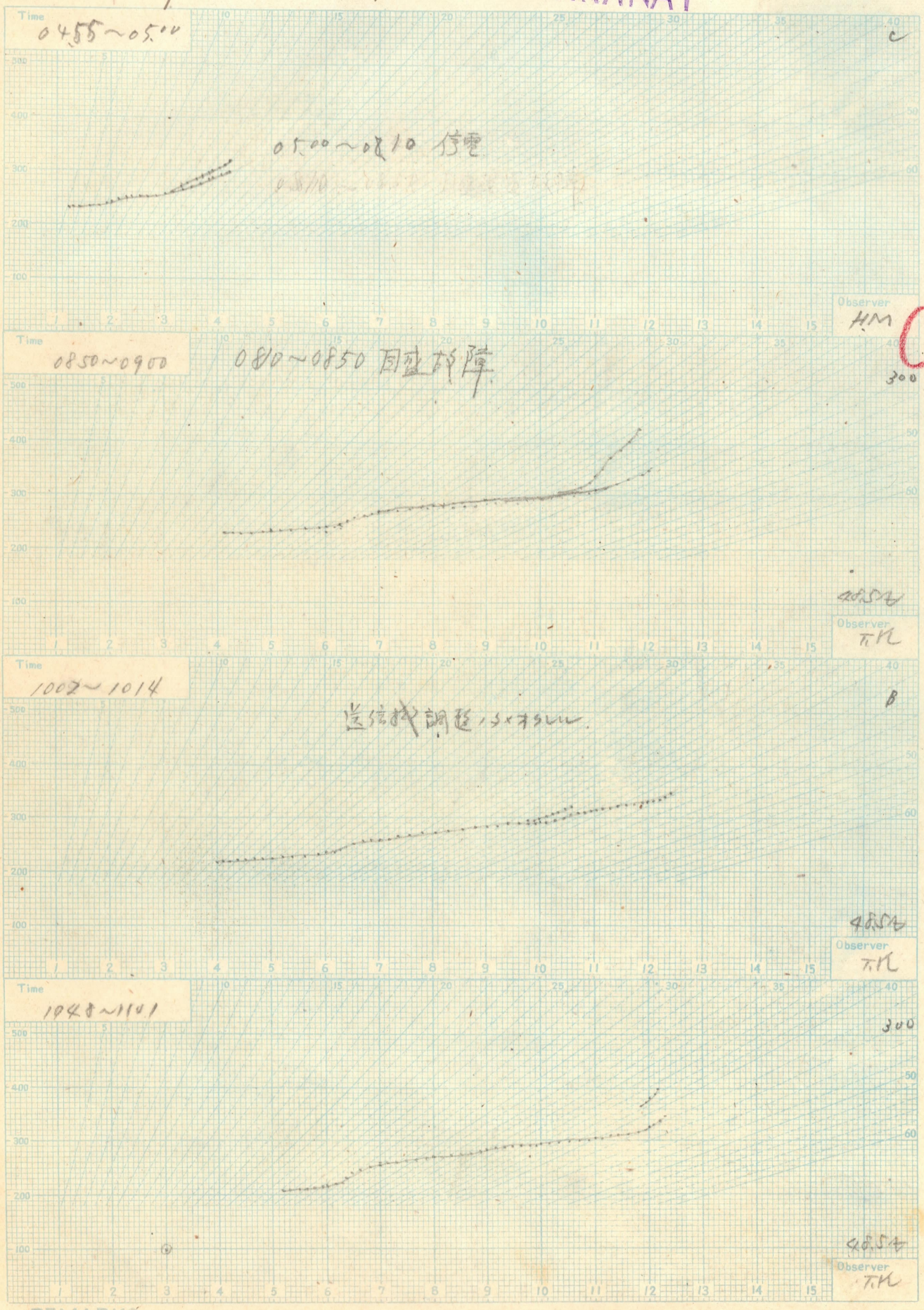


$f°F_2$	5.6	4.7	4.8	[4.8] 4.7
$h'F_2$	240	250	220	[220] 220
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	E	E	E	c E
fF_{min}	E	N	E	c 1.2
fE_{min}	E	E	E	c E
3000 MUF	16.0	14.9	14.0	14.9
M_{3000}	2.8	3.1	2.9	[3.0] 3.1

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 15 1949 STATION WAKKANAI NO 7267



f^oF_2	C
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	
M_{3000}	C

C

f^oF_2	12.0
$h'F_2$	280
f^oF_1	L
$h'F_1$	230
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	4.1
fE_{min}	B
3000 MUF	38.0
M_{3000}	3.1

f^oF_2	B
$h'F_2$	250
f^oF_1	L
$h'F_1$	220
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	4.0
fE_{min}	B
3000 MUF	
M_{3000}	B

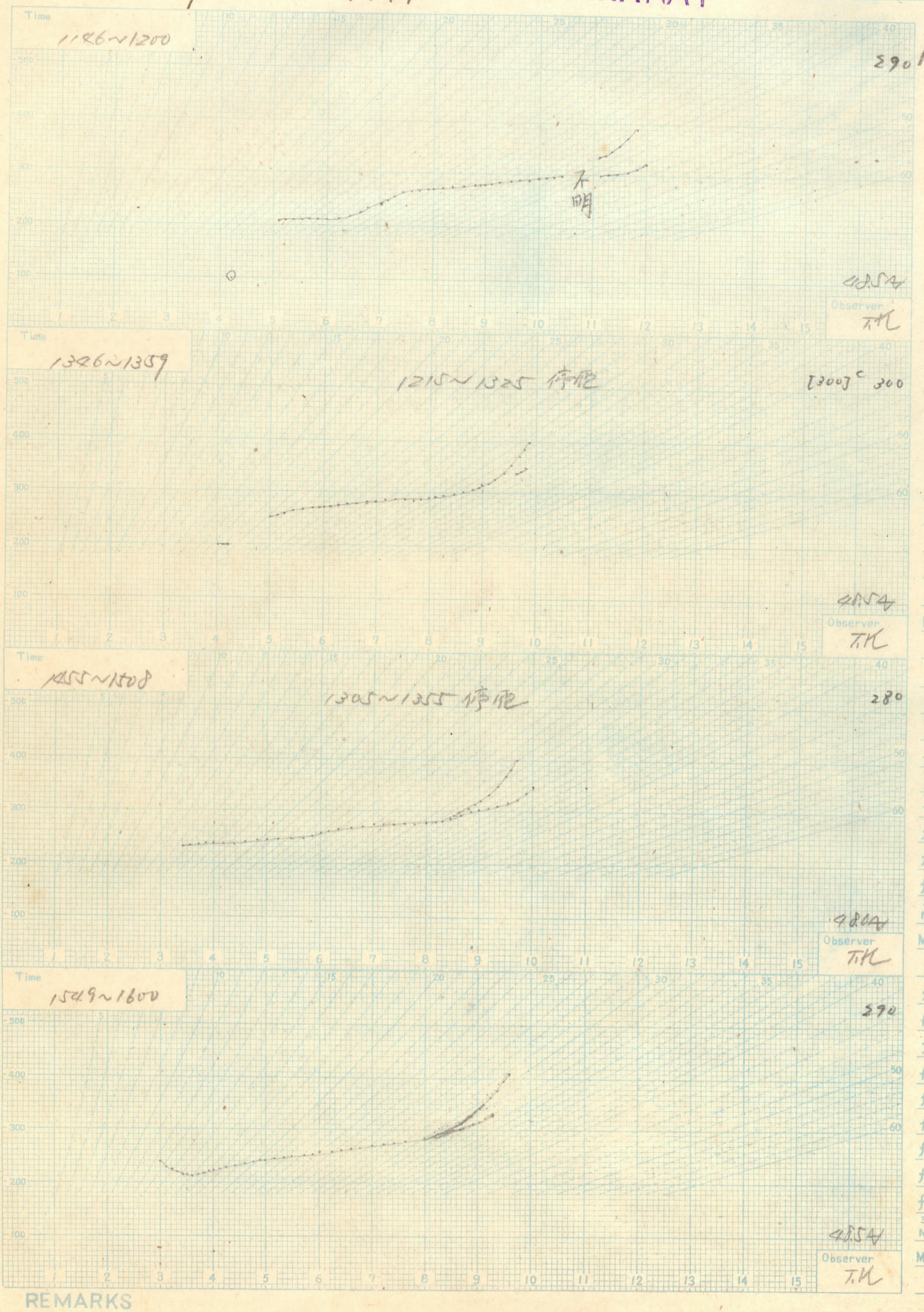
f^oF_2	12.3
$h'F_2$	260
f^oF_1	L
$h'F_1$	210
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	4.2
fE_{min}	B
3000 MUF	38.6
M_{3000}	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 15 1949 STATION WAKKANAI NO 7268



$f°F_2$	12.1 P			
$h'F_2$	270			
$f°F_1$	L			
$h'F_1$	210			
$f°E$	B			
$h'E$	B			
fE_s	B			
ff_{min}	5.1			
fE_{min}	B			
3000 MUF	38.0			
M_{3000}	3.1			
$f°F$	[11.1]C	10.1		
$h'F$	[260]C	250		
$f°F_1$	C	Q		
$h'F_1$	C	Q		
$f°E$	C	B		
$h'E$	C	B		
fE_s	C	B		
ff_{min}	[5.1]C	5.0		
fE_{min}	C	B		
3000 MUF		32.0		
M_{3000}	[3.1]C	3.1		
$f°F_2$	9.9			
$h'F_2$	230			
$f°F_1$	Q			
$h'F_1$	Q			
$f°E$	B			
$h'E$	B			
fE_s	B			
ff_{min}	3.K			
fE_{min}	B			
3000 MUF	32.0			
M_{3000}	3.2			
$f°F_2$	9.8			
$h'F_2$	210			
$f°F_1$	Q			
$h'F_1$	Q			
$f°E$	B			
$h'E$	B			
fE_s	B			
ff_{min}	3.0			
fE_{min}	B			
3000 MUF	31.0			
M_{3000}	3.1			

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 15 1949 STATION WAKKANAI NO 7269

VIRTUAL HEIGHT IN KM

Time 1650~1700



$f°F_2$	9.7
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	(1.8)
$h'E$	90
fE_s	B
ff_{min}	2.0
fE_{min}	1.2
3000 MUF	29.0
M_{3000}	2.9

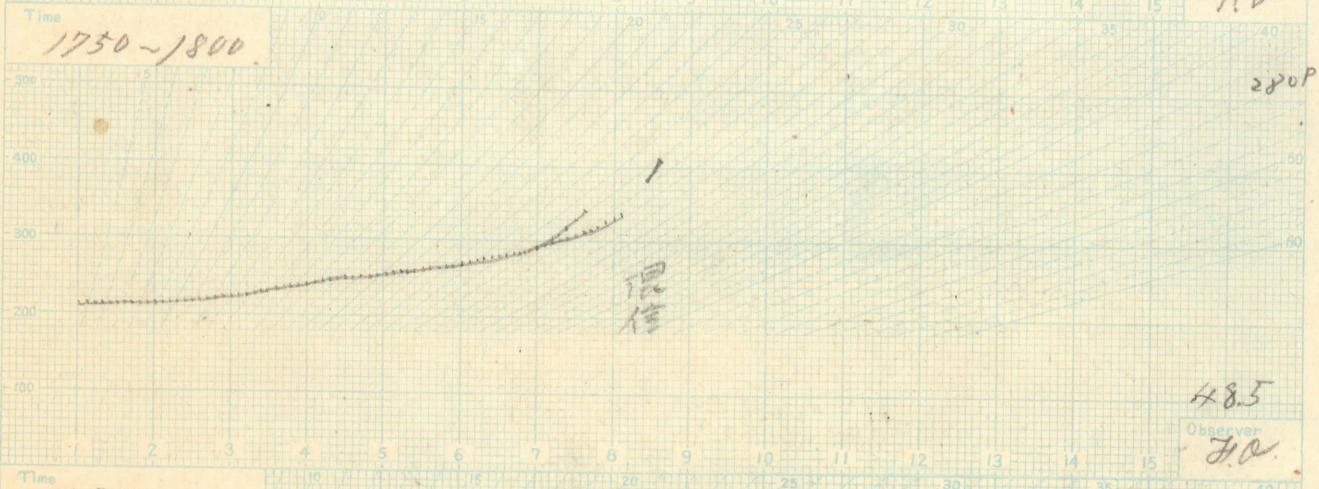
3.40

4.80

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 1750~1800



$f°F_2$	8.0 P
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	26.0 P
M_{3000}	3.2

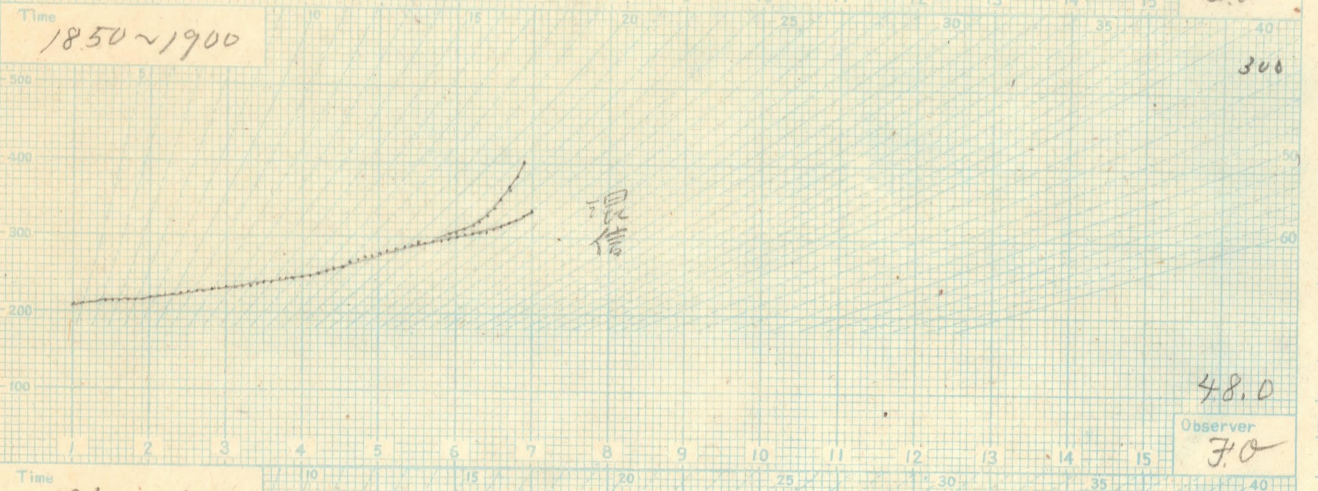
2.80P

4.8.5

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 1850~1900



$f°F_2$	7.1
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	22.0
M_{3000}	3.1

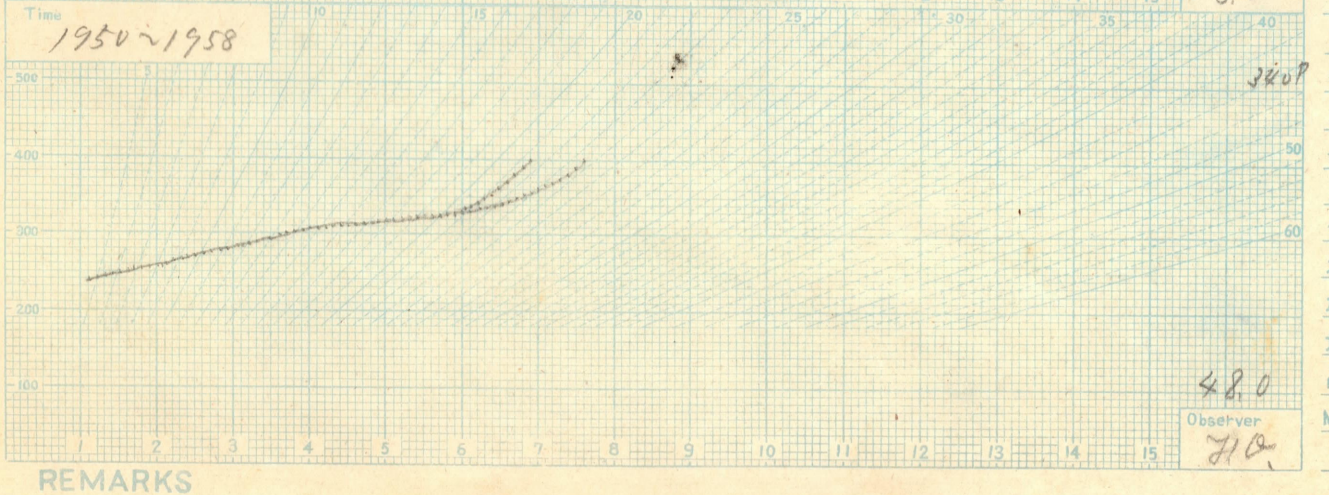
3.00

4.8.0

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 1950~1958



$f°F_2$	7.3 P
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E.
ff_{min}	1.1
fE_{min}	E
3000 MUF	21.5
M_{3000}	2.9 P

3.40P

4.8.0

Observer F.O.

REMARKS

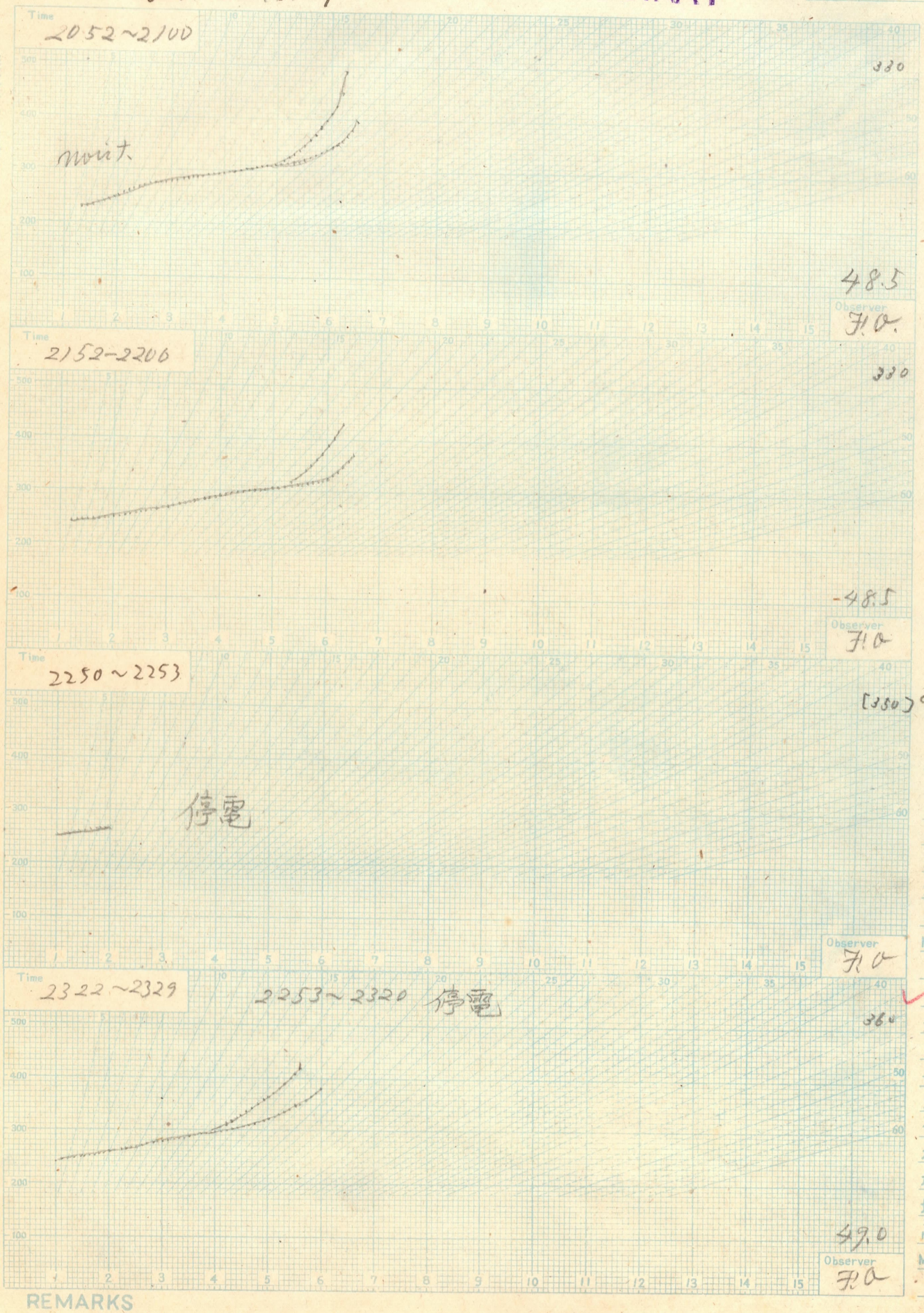
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb. 15th. 1949

STATION WAKKANAI

NO 7270



f^oF_2	6.3
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	18.5
M_{3000}	2.9

f^oF_2	6.5
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	19.0
M_{3000}	2.9

f^oF_2	[6.2]c
$h'F_2$	~~[240]c~~ [350]c
f^oF_1	250
$h'F_1$	
f^oE	
$h'E$	
fE_s	c E
fF_{min}	c E
fE_{min}	c E
3000 MUF	
M_{3000}	[2.8]c

f^oF_2	6.0 p
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	16.9
M_{3000}	2.8 p

REMARKS

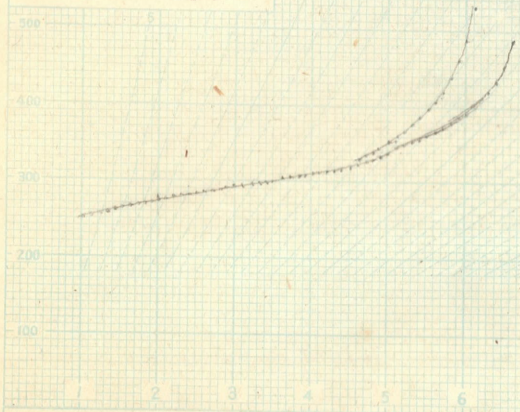
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 16. 1949 STATION WAKKANAI NO 72171

VIRTUAL HEIGHT IN KM

Time 2350~2358



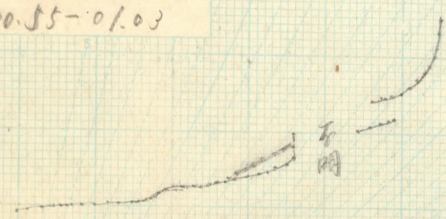
360

49.0

Observer H.O.

f^0F_2 6.1
$h'F_2$ 250
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 12.0
M_{3000} 2.7

Time 00.55~01.03



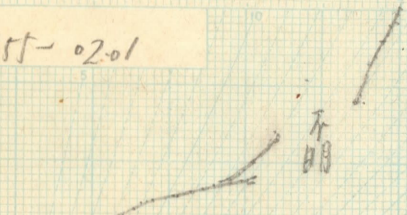
BH

50.5

Observer M H

f^0F_2 6.8 H
$h'F_2$ 290 H
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 17.5
M_{3000} 2.6 H

Time 01.55~02.01



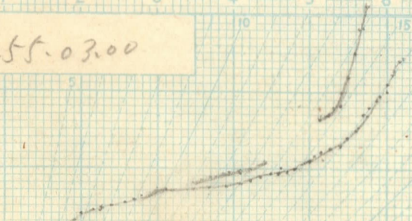
B

50.5

Observer M H

f^0F_2 (6.1)
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 15.0
M_{3000} (2.4)

Time 02.55~03.00



B

50.5

Observer M H

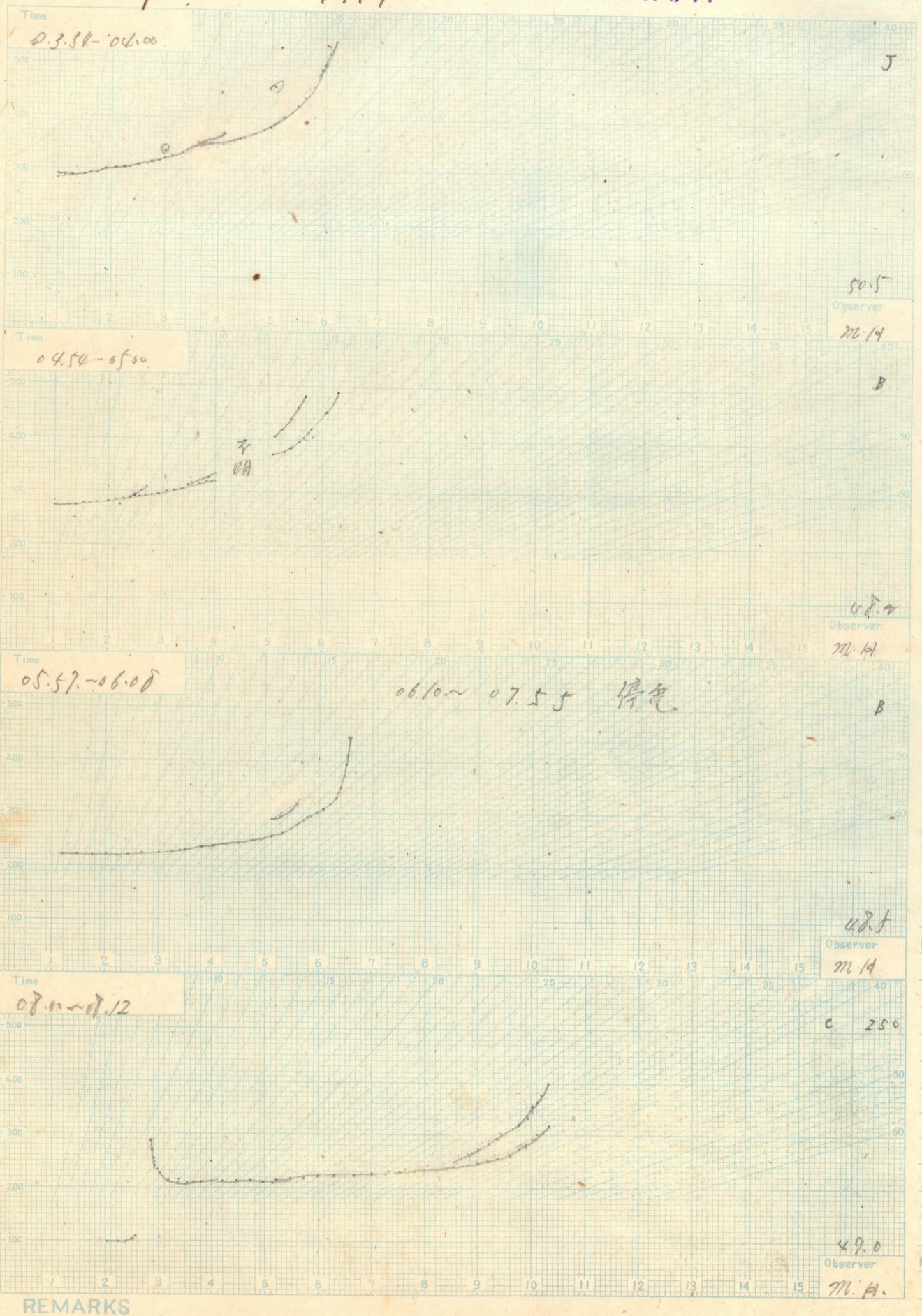
f^0F_2 5.8
$h'F_2$ 310
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} 1.1
fE_{min} E
3000 MUF 14.9
M_{3000} 2.5

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 16 1949 STATION WAKKANAI NO 7272



$f°F_2$	5.6	J	
$h'F_2$	≥90		
$f°F_1$			
$h'F_1$			
$f°E$			
$h'E$			
fE_s	E		
ff_{min}	E		
fE_{min}	E		
3000 MUF			
M_{3000}	J		
$f°F_2$	5.9		
$h'F_{2J}$	≥90		
$f°F_1$			
$h'F_1$			
$f°E$			
$h'E$			
fE_s	E		
ff_{min}	E		
fE_{min}	E		
3000 MUF	13.9		
M_{3000}	2.9		
$f°F_2$	5.9	P	
$h'F_2$	≥90		
$f°F_1$	0		
$h'F_1$	0		
$f°E$	E		
$h'E$	E		
fE_s	E		
ff_{min}	∧Z		
fE_{min}	E		
3000 MUF	20.0	P	
M_{3000}	3.3	P	
$f°F_2$	[5.2]	C	10.5
$h'F_2$	[220]	C	≥10
$f°F_1$	C	0	
$h'F_1$	C	0	
$f°E$	C	2.8	
$h'E$	C	100	
fE_s	C	$<f_E$	
ff_{min}	[2.1]	C	2.9
fE_{min}	C	2.0	
3000 MUF			35.0
M_{3000}	[3.3]	C	3.3

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 16 1949 STATION WAKKANAI NO 7273

VIRTUAL HEIGHT IN KM

Time 0850~0905

300P

減衰

naiso

48.5

Observer T.O

f^0F_2	10.5P
$h'F_2$	210
f^0F_1	0
$h'F_1$	0
f^0E	3.5
$h'E$	100
fE_s	$<f_E$
fF_{min}	3.6
fE_{min}	2.1
3000 MUF	33.0
M_{3000}	3.1P

Time 1515~1525

0950~1515 停電

48.5

Observer T.O

f^0F_2	10.5
$h'F_2$	230
f^0F_1	0
$h'F_1$	0
f^0E	3.5
$h'E$	B
fE_s	B
fF_{min}	4.1
fE_{min}	3.4
3000 MUF	34.0
M_{3000}	3.2

Time 1553~1603

300

49.0

Observer T.O

f^0F_2	10.0
$h'F_2$	200
f^0F_1	0
$h'F_1$	0
f^0E	A
$h'E$	A
fE_s	4.1
fF_{min}	A
fE_{min}	1.8
3000 MUF	31.0
M_{3000}	3.1

Time 1654~1704

240

48.0

Observer AM

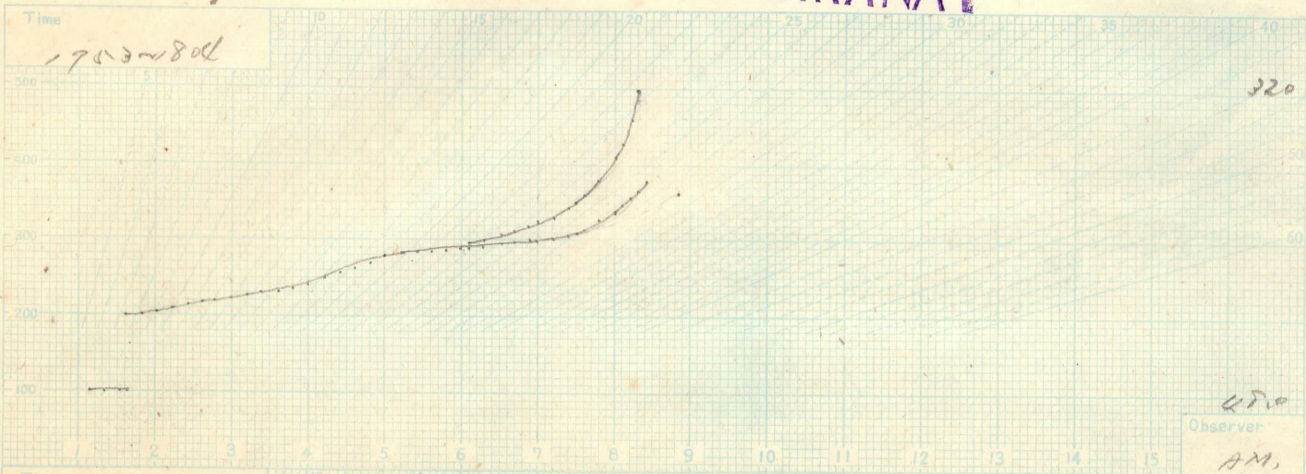
f^0F_2	10.0
$h'F_2$	240
f^0F_1	0
$h'F_1$	0
f^0E	1.9
$h'E$	100
fE_s	$<f_E$
fF_{min}	1.9
fE_{min}	1.1
3000 MUF	28.8
M_{3000}	2.8

REMARKS

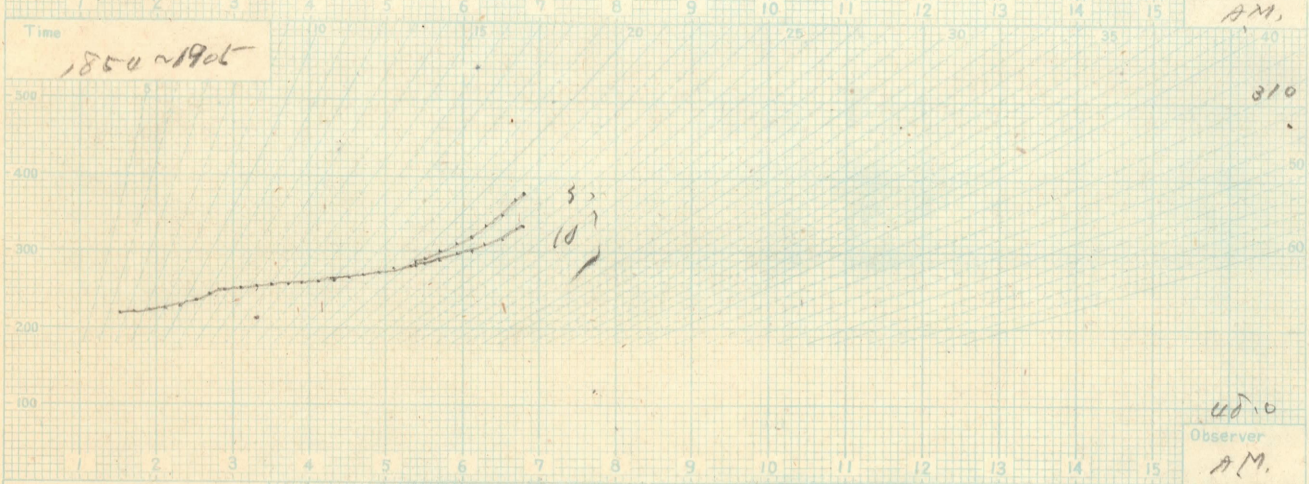
IONOSPHERIC RECORD

135°E MEAN TIME

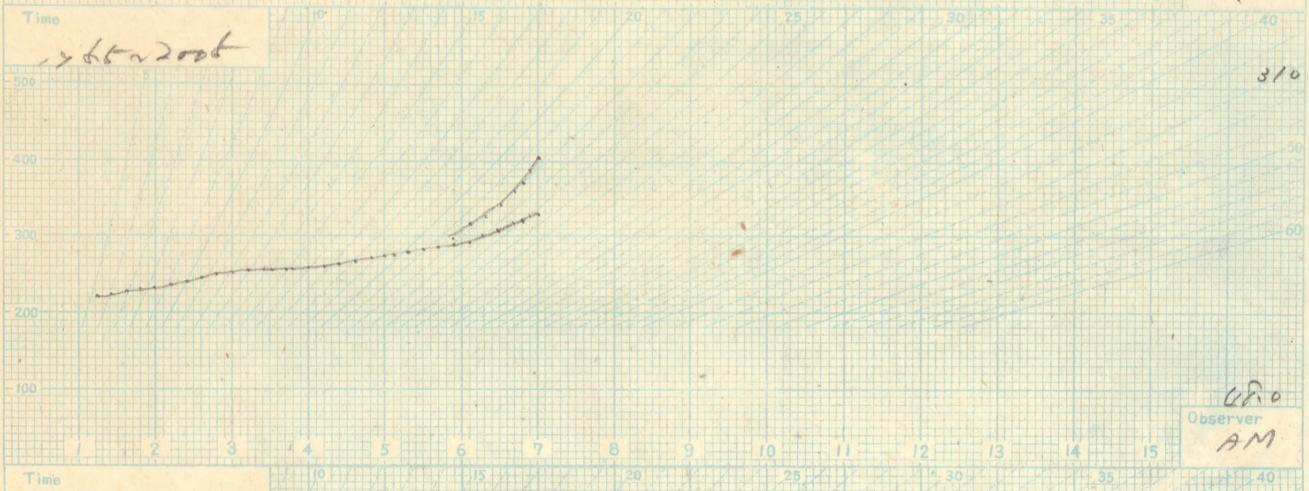
DATE Feb 16 1949 STATION WAKKANAI NO 7274



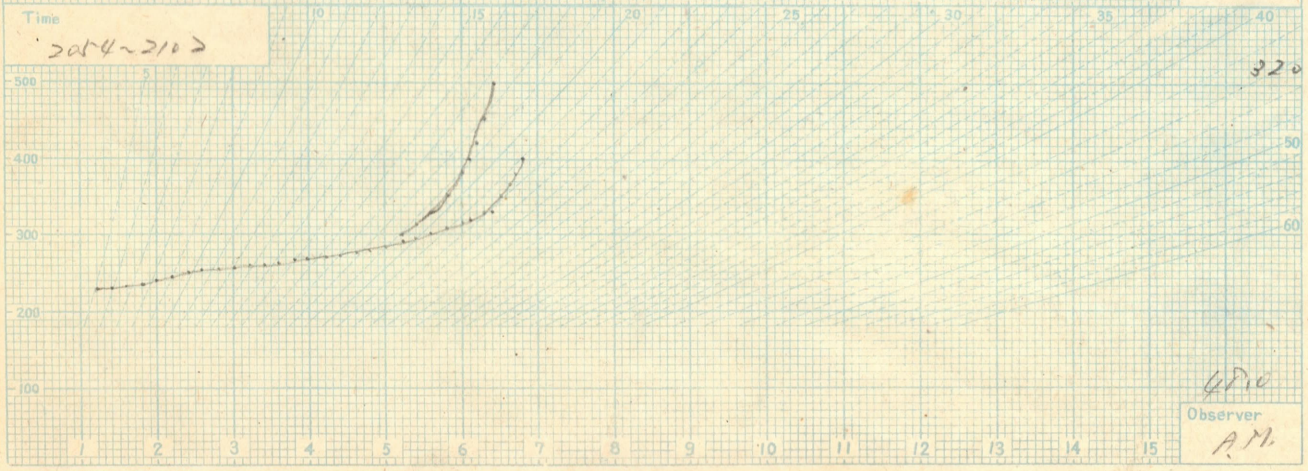
f^oF_2	8.3
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	A
$h'E$	A
fE_s	1.6
fF_{min}	A
fE_{min}	1.1
3000 MUF	25.0
M_{3000}	3.0



f^oF_2	7.2
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.5
fE_{min}	E
3000 MUF	21.9
M_{3000}	3.0



f^oF_2	7.2
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	22.0
M_{3000}	3.0



f^oF_2	6.5
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	19.4
M_{3000}	2.9

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE - Feb 16 1949 STATION WAKKANAI NO 7275



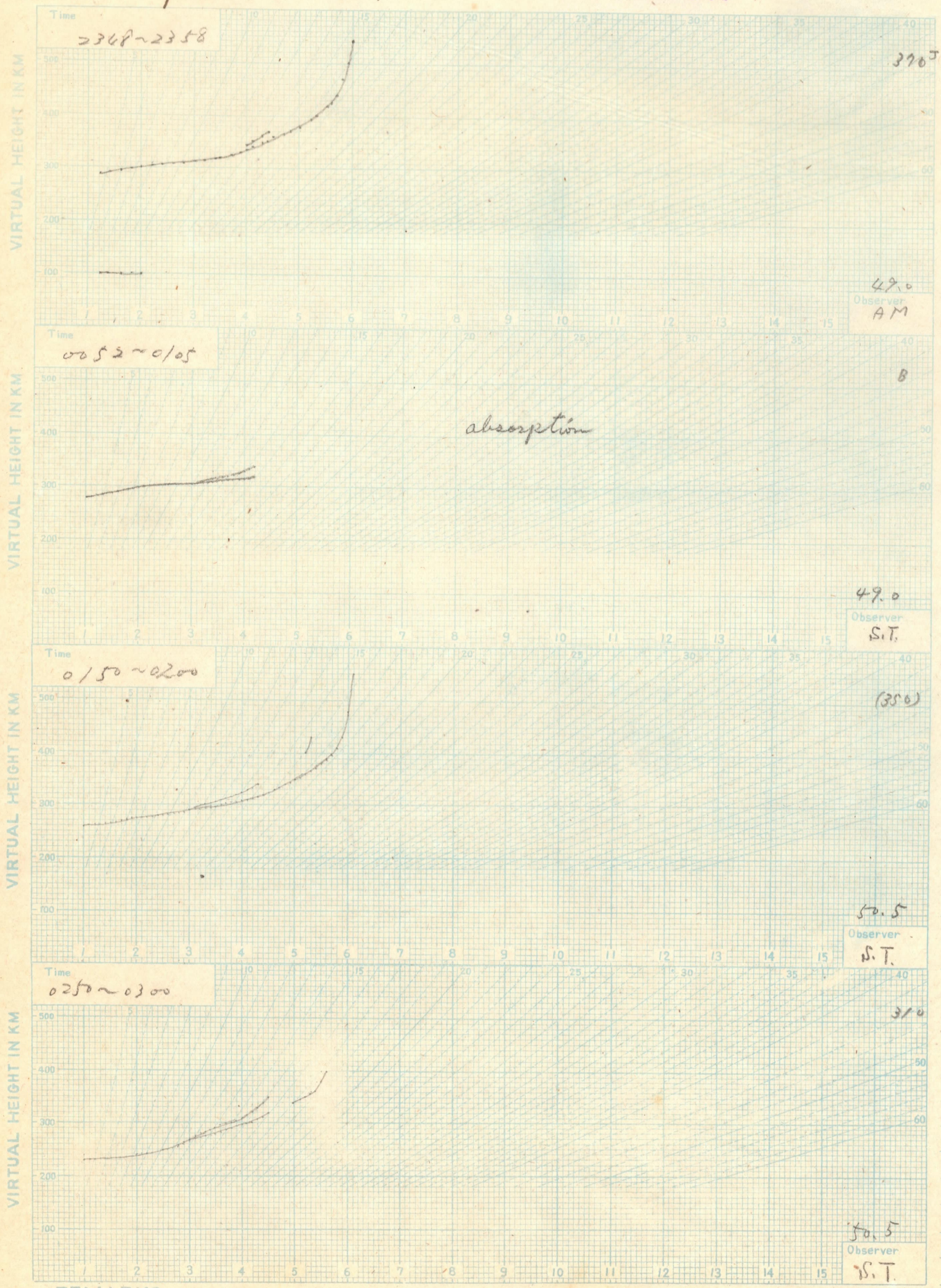
f^0F_2	5.8	J
$h'F_2$	240	
f^0F_1		
$h'F_1$		
f^0E		
$h'E$		
fE_s	E	
fF_{min}	1.2	
fE_{min}	E	
3000 MUF		
M_{3000}	J	
f^0F_2	5.4	
$h'F_2$	270	
f^0F_1		
$h'F_1$		
f^0E		
$h'E$		
fE_s	E	
fF_{min}	1.2	
fE_{min}	E	
3000 MUF	17.1	
M_{3000}	3.1	
f^0F_2		
$h'F_2$		
f^0F_1		
$h'F_1$		
f^0E		
$h'E$		
fE_s		
fF_{min}		
fE_{min}		
3000 MUF		
M_{3000}		
f^0F_2		
$h'F_2$		
f^0F_1		
$h'F_1$		
f^0E		
$h'E$		
fE_s		
fF_{min}		
fE_{min}		
3000 MUF		
M_{3000}		

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 17 1949 STATION WAKKANAI NO 7276



f^oF_2	5.3J
$h'F_2$	290
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	2.0
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	
M_{3000}	J

f^oF_2	B
$h'F_2$	280
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	
M_{3000}	B

f^oF_2	5.4
$h'F_2$	260
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	16.0
M_{3000}	2.9

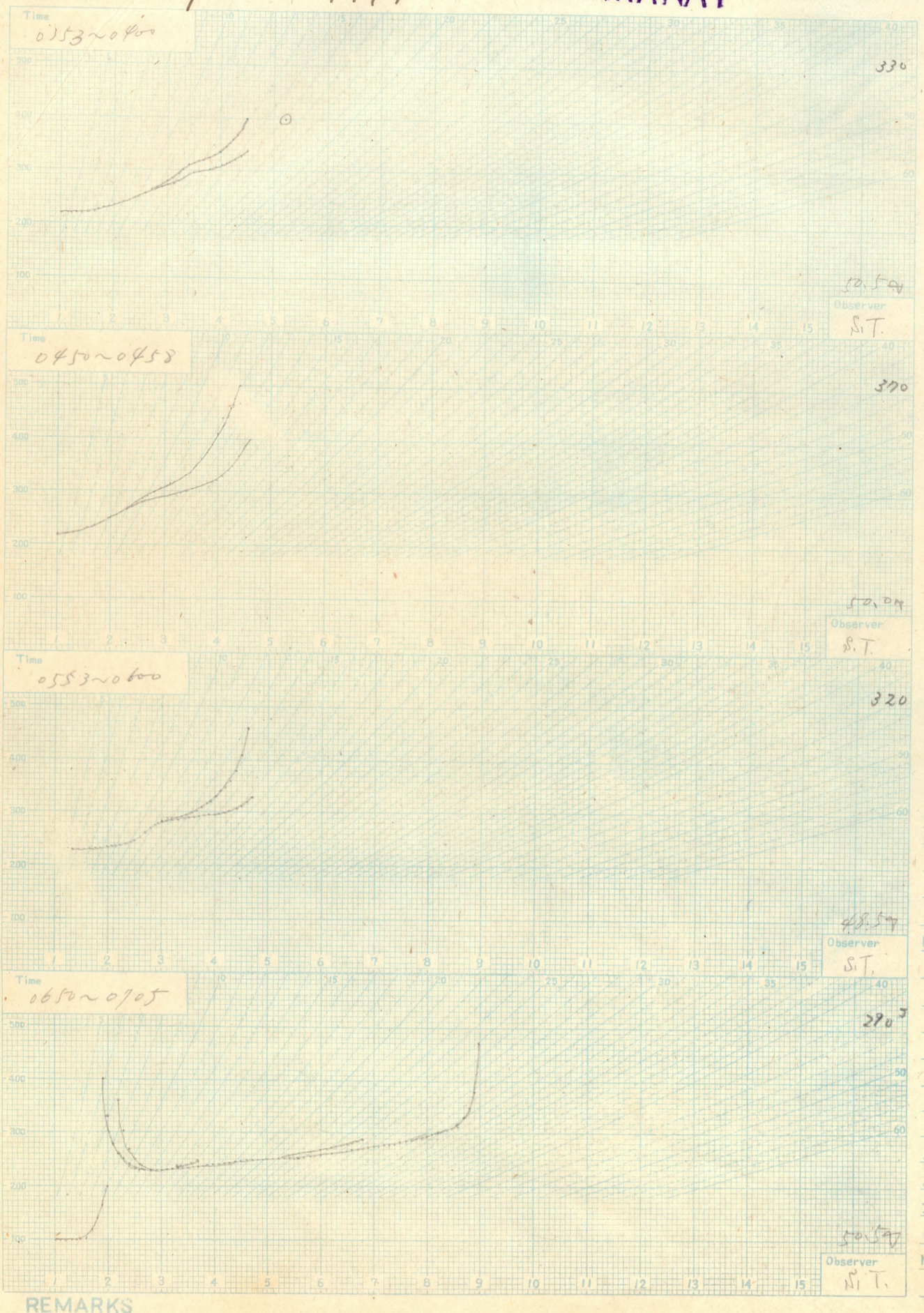
f^oF_2	4.8
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	15.0
M_{3000}	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 17 1949 STATION WAKKANAI NO 7277



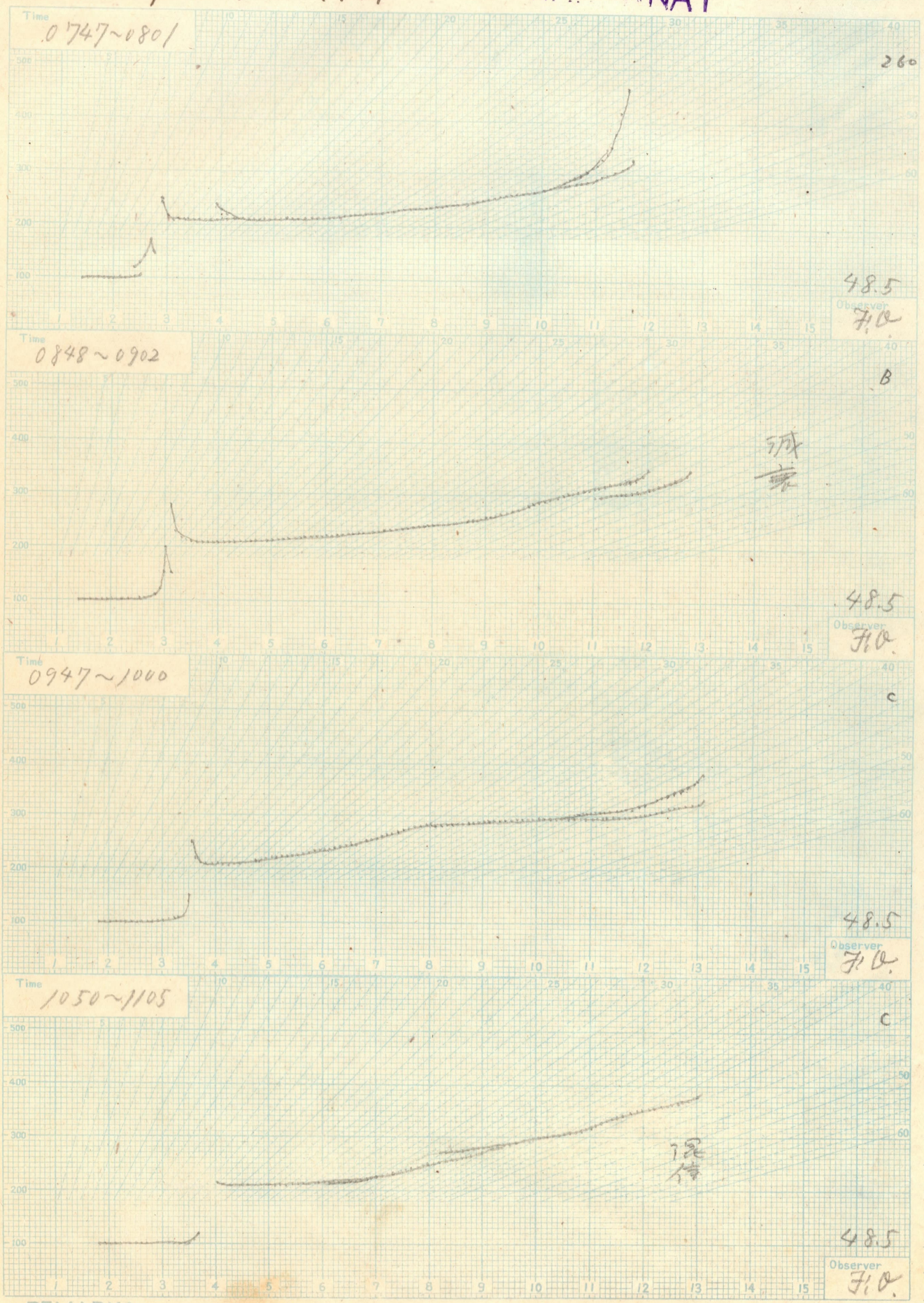
$f°F_2$	4.7	$f°F_2$	4.5	$f°F_2$	4.6	$f°F_2$	8.3 J
$h'F_2$	220	$h'F_2$	220	$h'F_2$	230	$h'F_2$	230
$f°F_1$		$f°F_1$		$f°F_1$	0	$f°F_1$	0
$h'F_1$		$h'F_1$		$h'F_1$	0	$h'F_1$	0
$f°E$		$f°E$		$f°E$	E	$f°E$	1.9
$h'E$		$h'E$		$h'E$	E	$h'E$	100
fE_s	E	fE_s	E	fE_s	E	fE_s	$< fE$
$ffmin$	E	$ffmin$	E	$ffmin$	1.3	$ffmin$	1.7
$fEmin$	E	$fEmin$	E	$fEmin$	E	$fEmin$	E
3000 MUF	14.0	3000 MUF	12.2	3000 MUF	14.0	3000 MUF	–
M_{3000}	2.9	M_{3000}	2.7	M_{3000}	3.0	M_{3000}	J

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE ~~Feb~~ 17. 1949 STATION WAKKANAI NO 7278



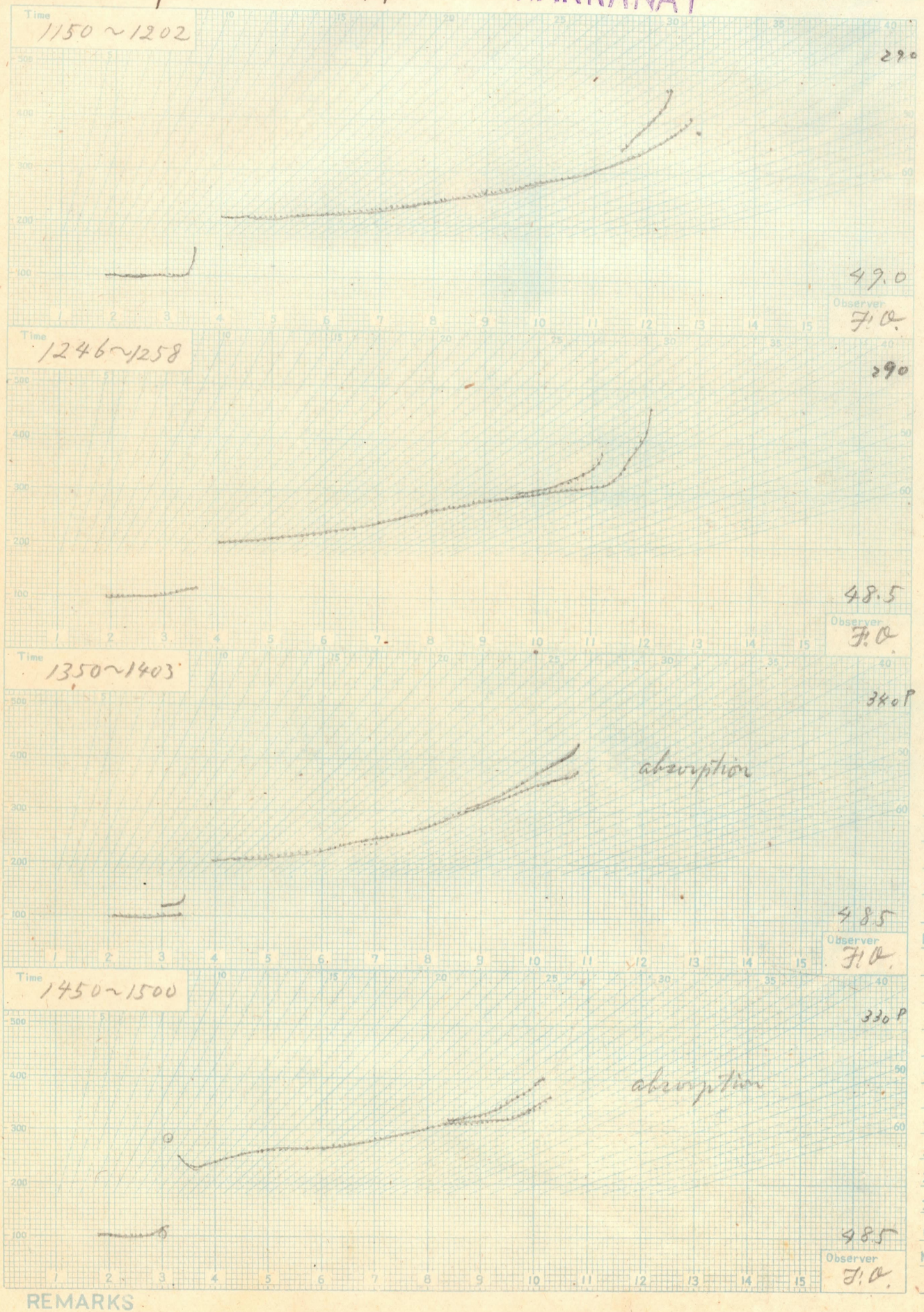
$f°F_2$	11.6
$h'F_2$	210
$f°F_1$	∅
$h'F_1$	∅
$f°E$	2.7
$h'E$	A
fE_s	2.8
fF_{min}	2.9
fE_{min}	1.4
3000 MUF	39.0
M_{3000}	3.3
$f°F_2$	B
$h'F_2$	210
$f°F_1$	∅
$h'F_1$	∅
$f°E$	3.0
$h'E$	100
fE_s	3.1
fF_{min}	3.1
fE_{min}	1.4
3000 MUF	
M_{3000}	B
$f°F_2$	C
$h'F_2$	280
$f°F_1$	∅ L
$h'F_1$	∅ 210
$f°E$	3.5
$h'E$	100
fE_s	<f_E
fF_{min}	3.6
fE_{min}	1.8
3000 MUF	42.0
M_{3000}	C
$f°F_2$	C
$h'F_2$	270
$f°F_1$	∅ L
$h'F_1$	∅ 210
$f°E$	3.8
$h'E$	100
fE_s	B
fF_{min}	4.0
fE_{min}	1.8
3000 MUF	
M_{3000}	C

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 17 1949 STATION WAKKANAI NO 7279

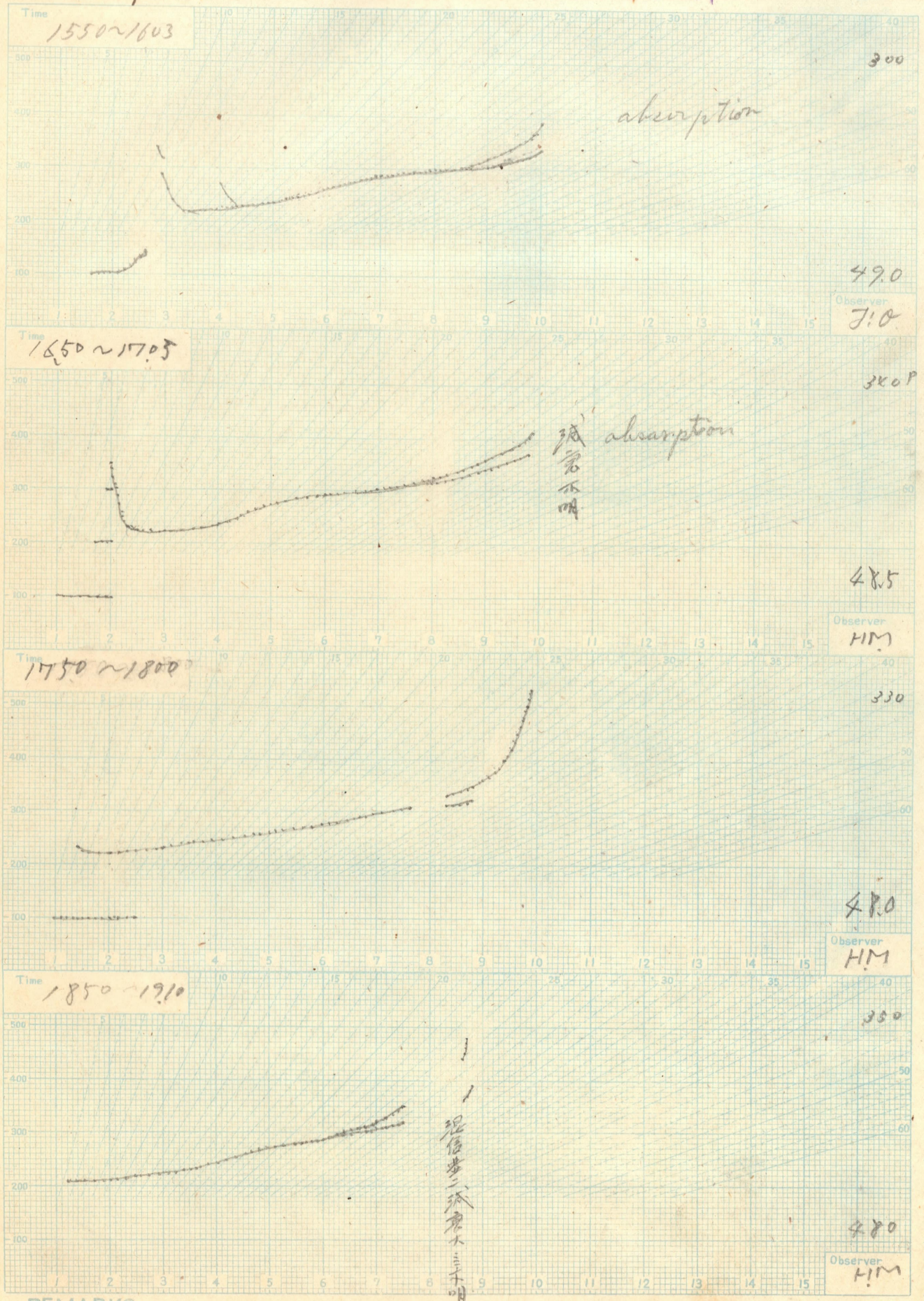


	1150~1202	1246~1258	1350~1403	1450~1500
$f°F_2$	12.5	11.2	11.1 P	10.8 P
$h'F_2$	210	200	200	260
$f°F_1$	Ø	Ø	Ø	L
$h'F_1$	Ø	Ø	Ø	230
$f°E$	3.5	B	3.5	(3.2)
$h'E$	100	100	A	100
fE_s	B	B	B	B
ff_{min}	4.0	4.0	4.0	3.3
fE_{min}	1.8	1.9	2.1	1.8
3000 MUF	39.0	37.0	38.2 P	31.6 P
M_{3000}	3.1	3.3	2.9 P	2.9
	270	290	340 P	330 P
	49.0	48.5	48.5	48.5
Observer	F.O.	F.O.	F.O.	F.O.

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 17 1949 STATION WAKKANAI NO 7280



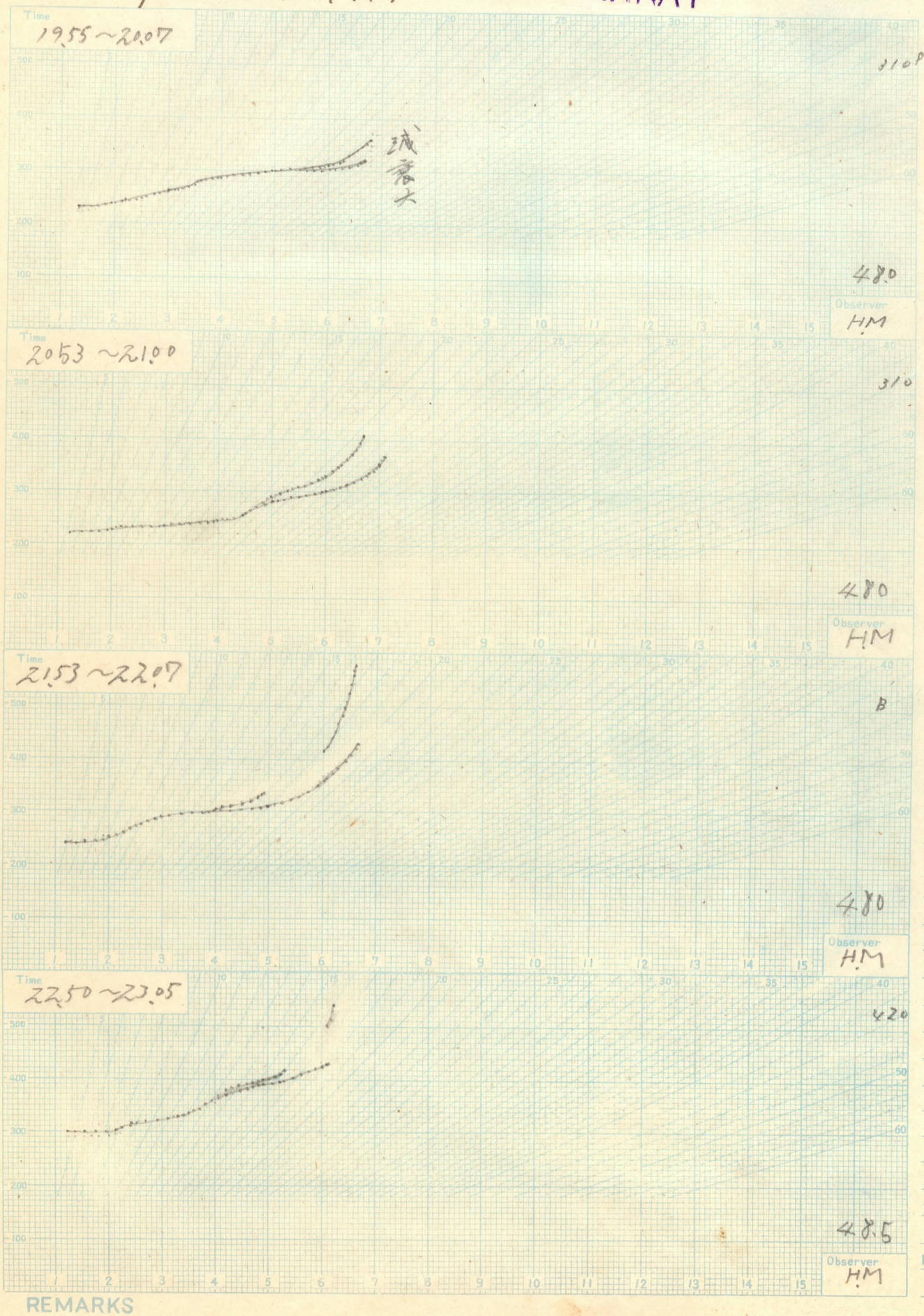
	1550~1603	1650~1705	1750~1800	1850~1910
f^0F_2	10.2	10.2P	10.0	8.7
$h'F_2$	220	220	220	210
f^0F_1	0	0	0	
$h'F_1$	0	0	0	
f^0E	2.7	(2.0)	A	
$h'E$	100	A	A	
fE_s	1.3	2.0	2.5	E
ff_{min}	2.9	2.0	A	A2
fE_{min}	1.6	E	E	E
3000 MUF	32.0	30.0	29.5	25.0
M_{3000}	3.1	2.9P	2.7	~~3.7~~ 2.8

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 17 1949 STATION WAKKANAI NO 7281



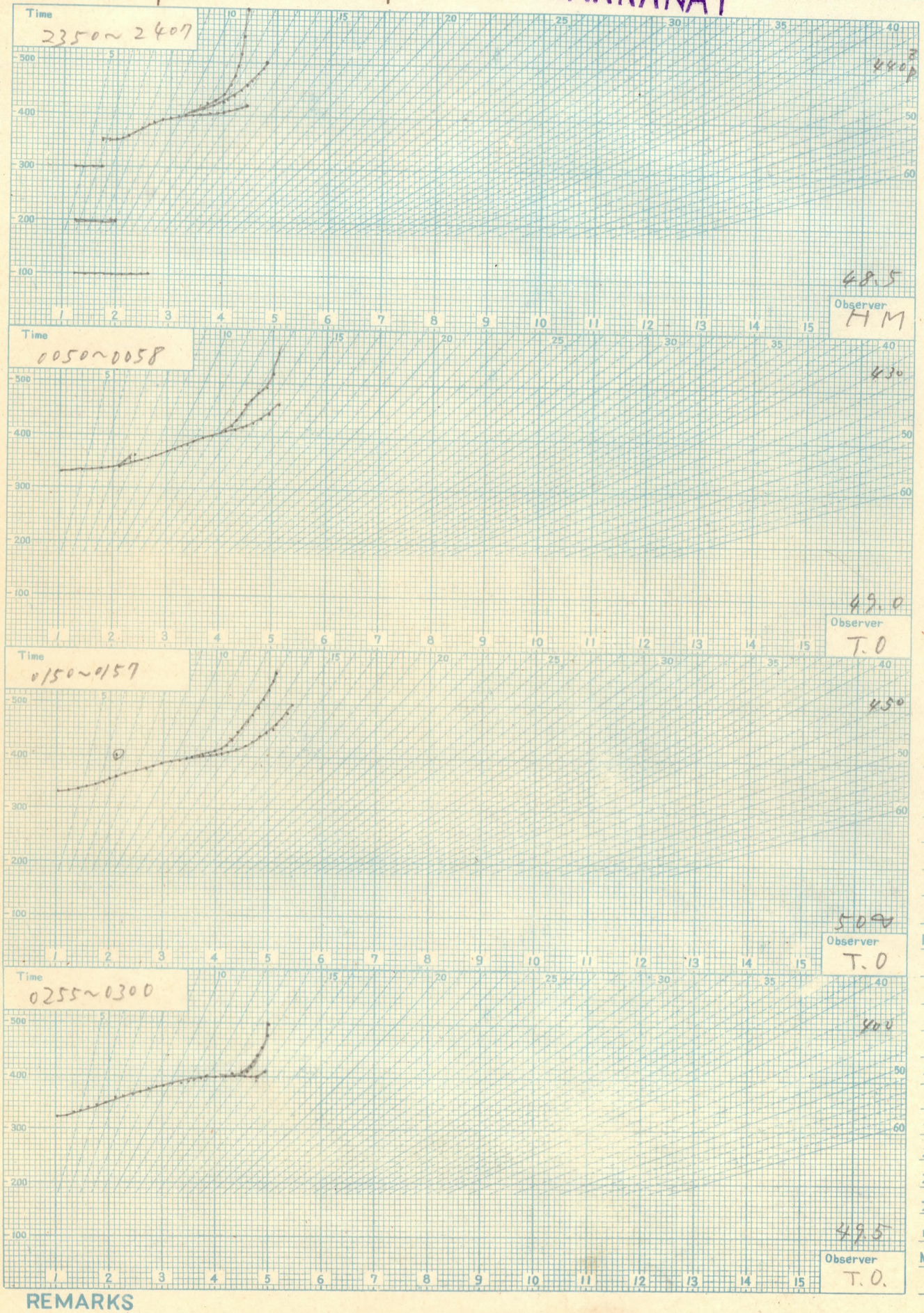
$f°F_2$	2.3P	6.8	6.7	6.2
$h'F_2$	230	220	240	300
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	E	E	E	E
fF_{min}	1.3	1.2	1.2	1.2
fE_{min}	E	E	E	E
3000 MUF	22.3	21.0	18.0	16.5
M_{3000}	3.0P.	3.0	2.6	2.6

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 18 1949 STATION WAKKANAI NO 7282



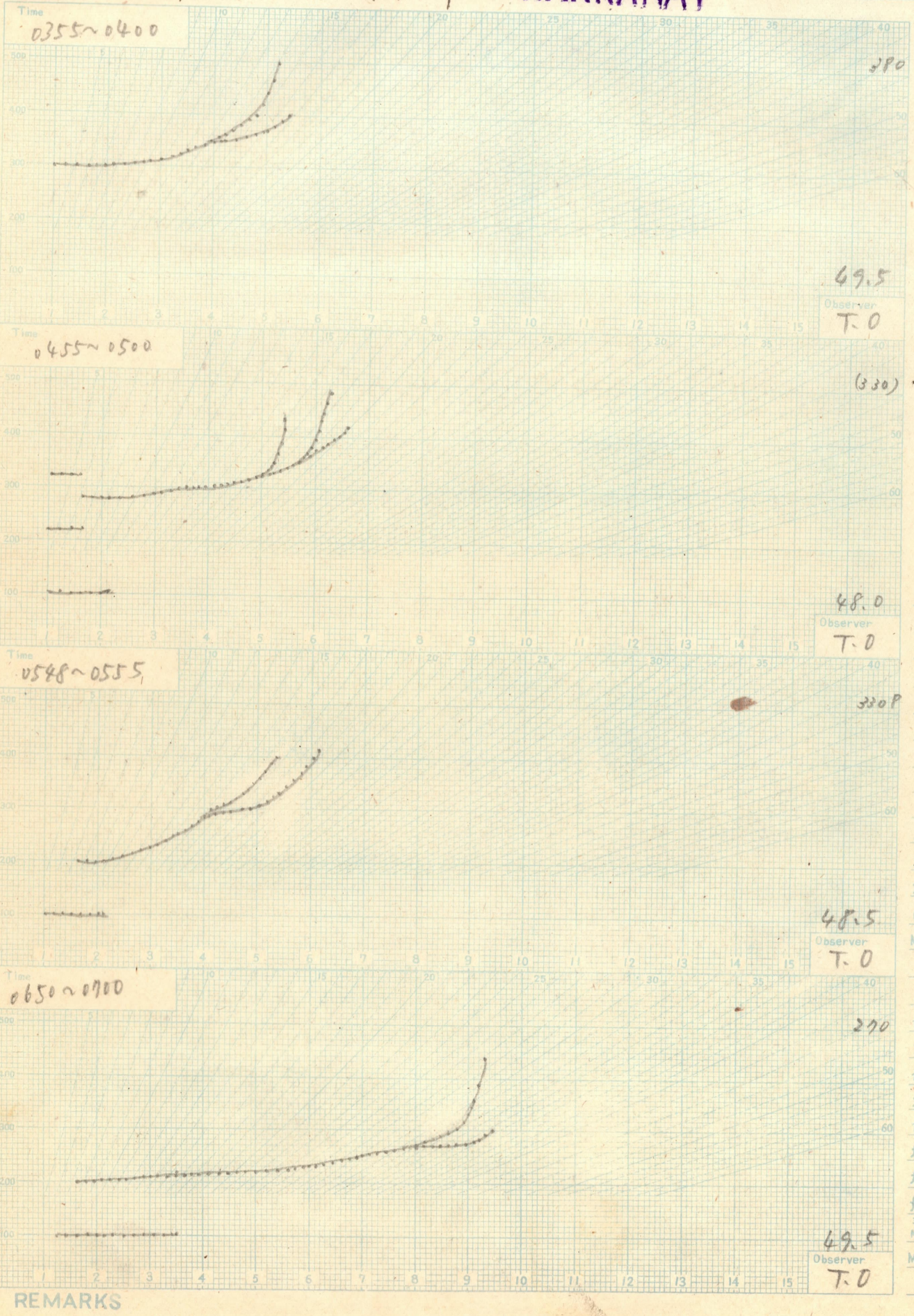
$f°F_2$	6.1	4.8	5.2	5.0
$h'F_2$	350	330	330	320
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	2.6	E	E	E
ff_{min}	A	E	E	E
fE_{min}	1.2	E	E	E
3000 MUF	13.0	13.2	13.0	14.0
M_{3000}	2.5	2.5	2.5	2.8

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 18. 1949 STATION WAKKANAI NO 7283



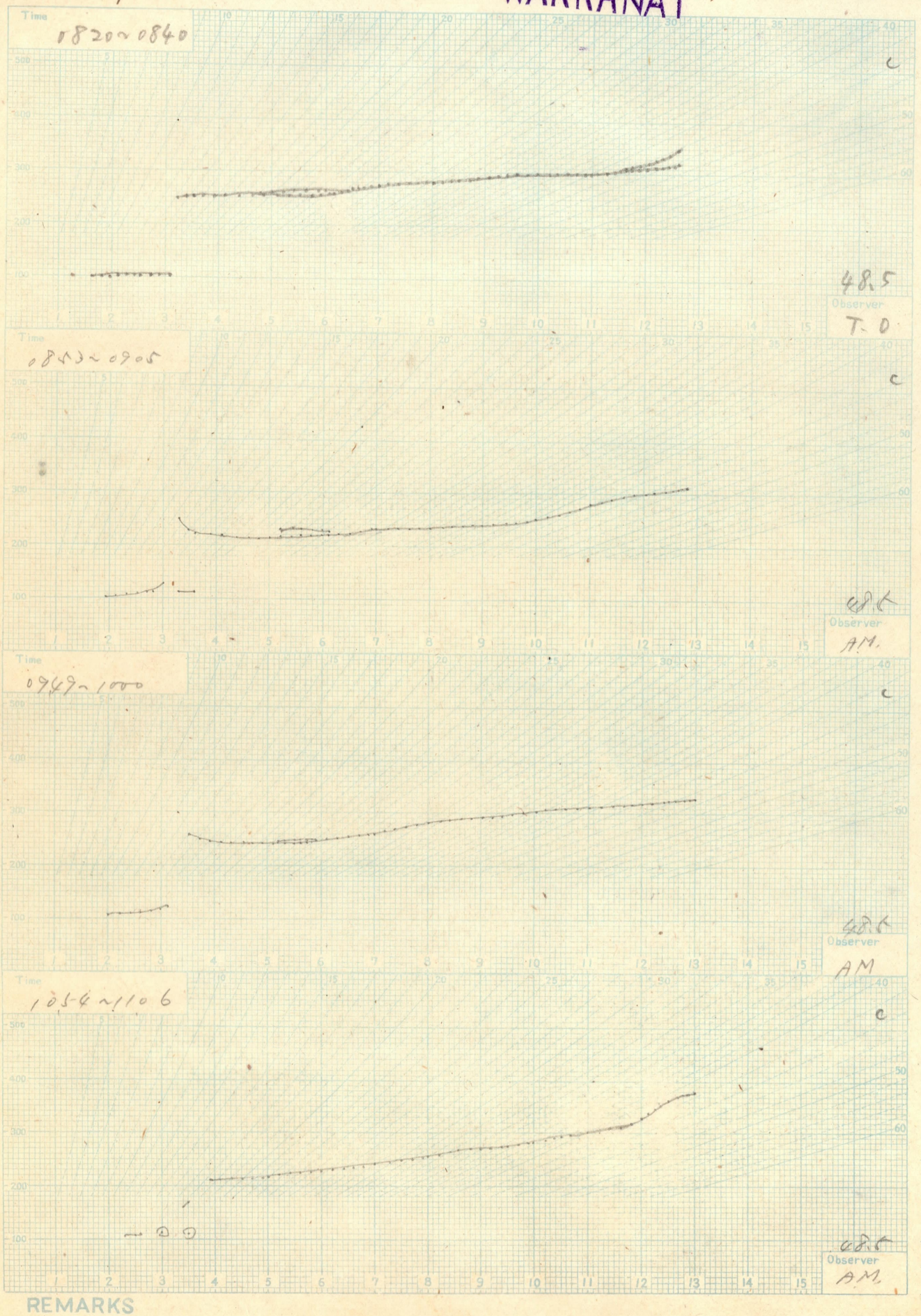
$f°F_2$	5.3
$h'F_2$	300
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	14.6
M_{3000}	2.7
$f°F_2$	(6.3) ~~5.4~~
$h'F_2$	280
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.1
ff_{min}	A
fE_{min}	E
3000 MUF	17.9
M_{3000}	~~3.3~~ (2.8)
$f°F_2$	5.7P
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	A
$h'E$	A
fE_s	2.1
ff_{min}	A
fE_{min}	E
3000 MUF	16.7P
M_{3000}	2.9
$f°F_2$	9.K
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	~~A~~
$h'E$	A
fE_s	3.5
ff_{min}	A
fE_{min}	1.2
3000 MUF	32.6
M_{3000}	3.4

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 18 1949 STATION WAKKANAI NO 7284



$f°F_2$	C	B
$h'F_2$	[230]	[240]
$f°F_1$	C	0
$h'F_1$	C	0
$f°E$	C	A
$h'E$	C	A
fE_s	C	3.1
ff_{min}	C	A
fE_{min}	[1.5]	[1.6]
3000 MUF		
M_{3000}	C	B

$f°F_2$	C
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	3.2
$h'E$	100
fE_s	3.6
ff_{min}	3.3
fE_{min}	1.9
3000 MUF	
M_{3000}	C

$f°F_2$	C
$h'F_2$	240
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	110
fE_s	B
ff_{min}	3.5
fE_{min}	2.0
3000 MUF	
M_{3000}	C

$f°F_2$	C
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	110
fE_s	B
ff_{min}	3.9
fE_{min}	2.3
3000 MUF	
M_{3000}	C

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 18 1949 STATION WAKKANAI NO 7285

VIRTUAL HEIGHT IN KM

Time 1148~1200

330

48.6

Observer AM

f^0F_2	12.9
$h'F_2$	220
f^0F_1	0
$h'F_1$	0
f^0E	B
$h'E$	B
fE_s	B
ff_{min}	5.2
fE_{min}	B
3000 MUF	38.0
M_{3000}	2.9

Time 1256~1306

340 J P

48.6

Observer AM

f^0F_2	12.3 J P
$h'F_2$	220
f^0F_1	0
$h'F_1$	0
f^0E	B
$h'E$	B
fE_s	B
ff_{min}	4.1
fE_{min}	B
3000 MUF	35.0 J P
M_{3000}	J P

Time 1355~1406

300 J

48.6

Observer AM

f^0F_2	11.8 J
$h'F_2$	210
f^0F_1	0
$h'F_1$	0
f^0E	B
$h'E$	B
fE_s	B
ff_{min}	4.1
fE_{min}	B
3000 MUF	
M_{3000}	J

Time 1456~1507

320

48.6

Observer AM

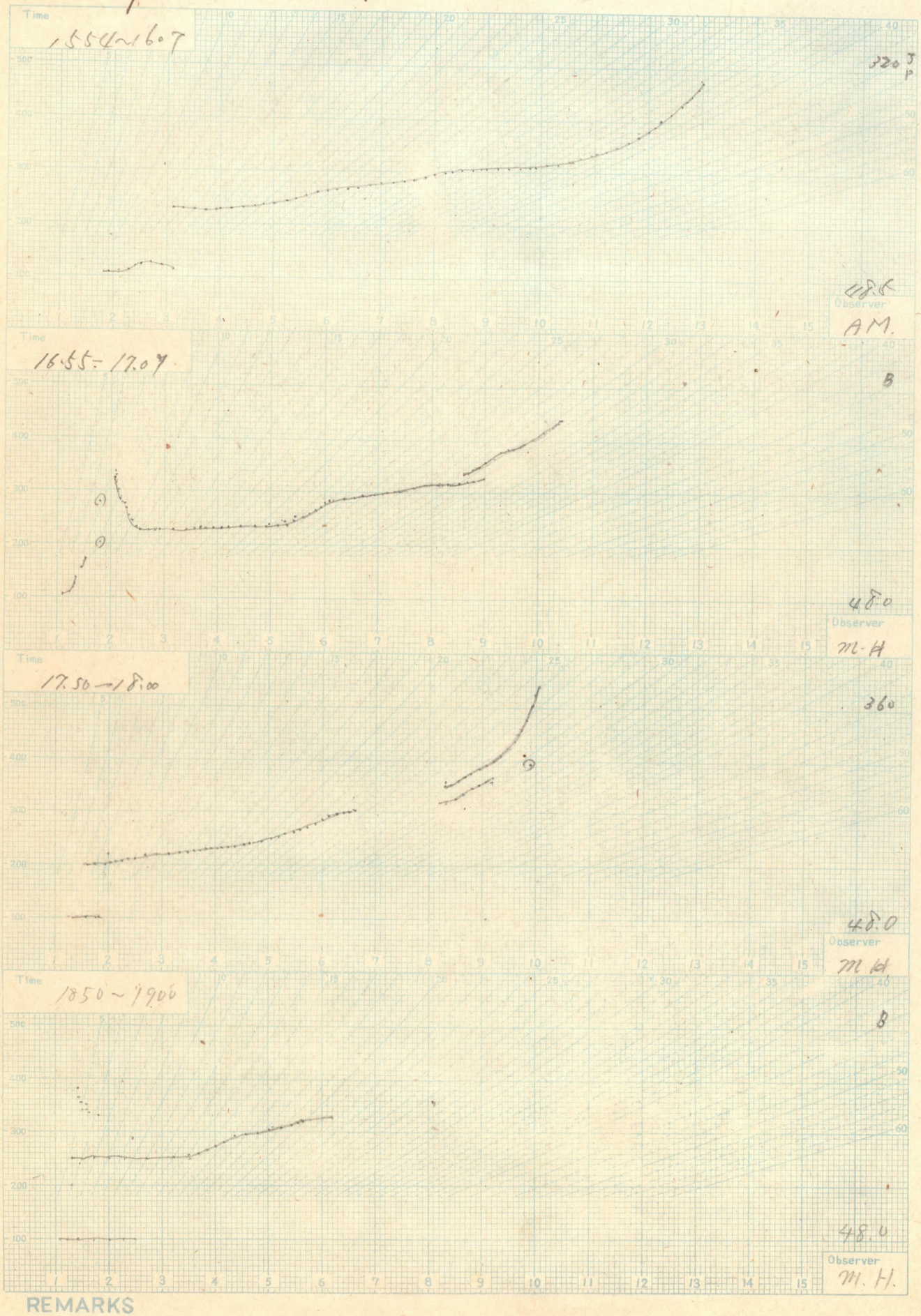
f^0F_2	12.0
$h'F_2$	250
f^0F_1	L
$h'F_1$	220
f^0E	B
$h'E$	B
fE_s	B
ff_{min}	3.4
fE_{min}	B
3000 MUF	35.0
M_{3000}	2.9

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE ~~Feb~~ 18 1969 STATION WAKKANAI NO 7286



f^0F_2	12.8 J P	f^0F_2	B	f^0F_2	10.2	f^0F_2	B
$h'F_2$	280	$h'F_2$	290	$h'F_2$	300	$h'F_2$	250
f^0F_1	Q L	f^0F_1	Q L	f^0F_1	D	f^0F_1	
$h'F_1$	Q 230	$h'F_1$	Q 230	$h'F_1$	Q	$h'F_1$	
f^0E	(2.7)	f^0E	1.5	f^0E	A	f^0E	
$h'E$	110	$h'E$	100	$h'E$	A	$h'E$	
fE_s	3.1	fE_s	$< f_E$	fE_s	1.8	fE_s	2.5
ff_{min}	A	ff_{min}	2.1	ff_{min}	1.6	ff_{min}	1.3
fE_{min}	1.8	fE_{min}	1.1	fE_{min}	1.3	fE_{min}	1.1
3000 MUF		3000 MUF		3000 MUF	28.3	3000 MUF	
M_{3000}	J	M_{3000}	B	M_{3000}	2.7	M_{3000}	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 18 · 1949 STATION WAKKANAI NO 7287

Time 1950~2000

C

送信機同調ハヅス
故障

48.5

Observer MH

C

VIRTUAL HEIGHT IN KM

Time

Observer

Time

Observer

Time

Observer

REMARKS

f^0F_2 C
$h'F_2$ 210
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 1.9
fF_{min} 1.2
fE_{min} 1.2
3000 MUF
M_{3000} C

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

f^0F_2
$h'F_2$
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s
fF_{min}
fE_{min}
3000 MUF
M_{3000}

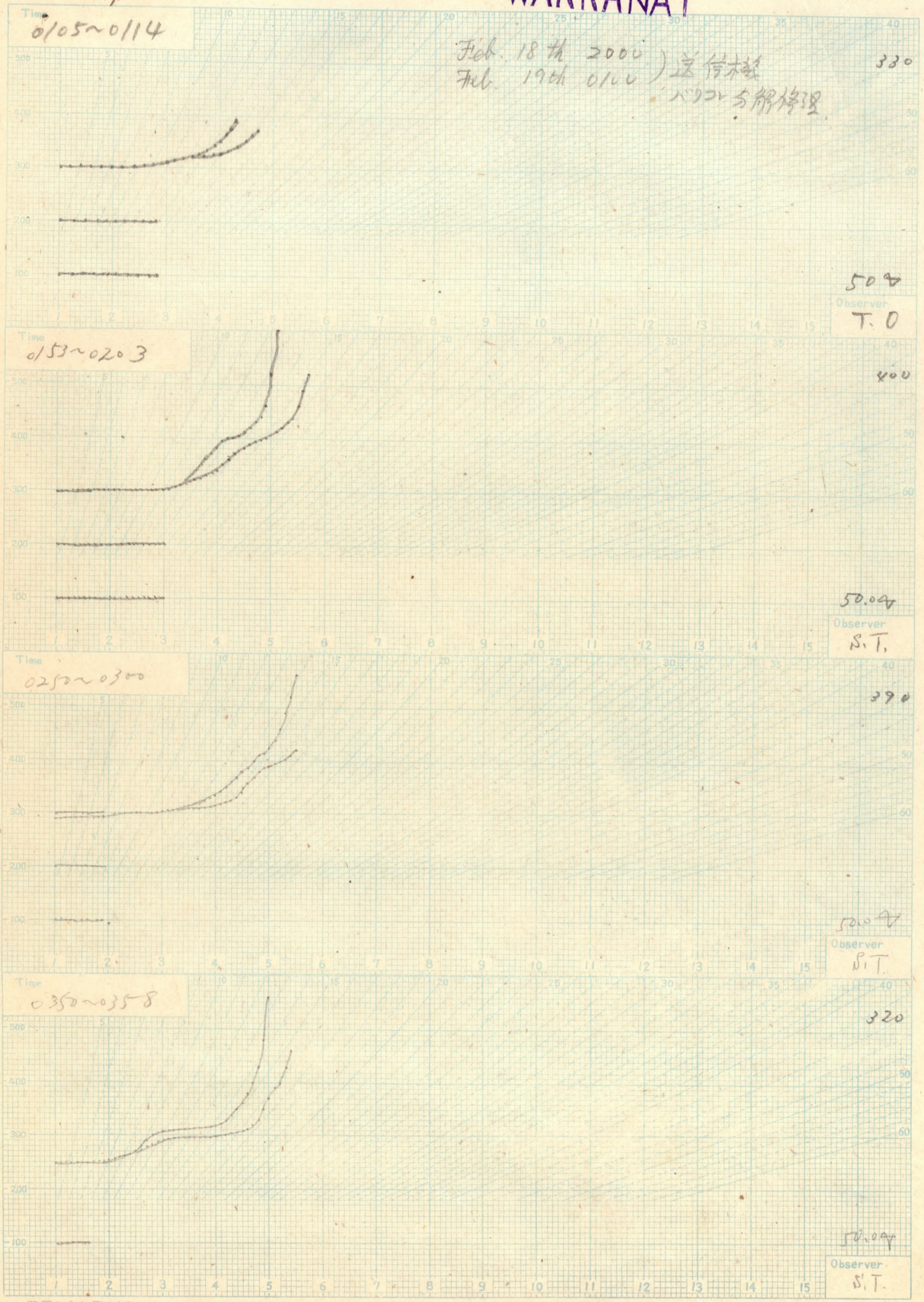
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 19 1949

STATION WAKKANAI

NO 7288



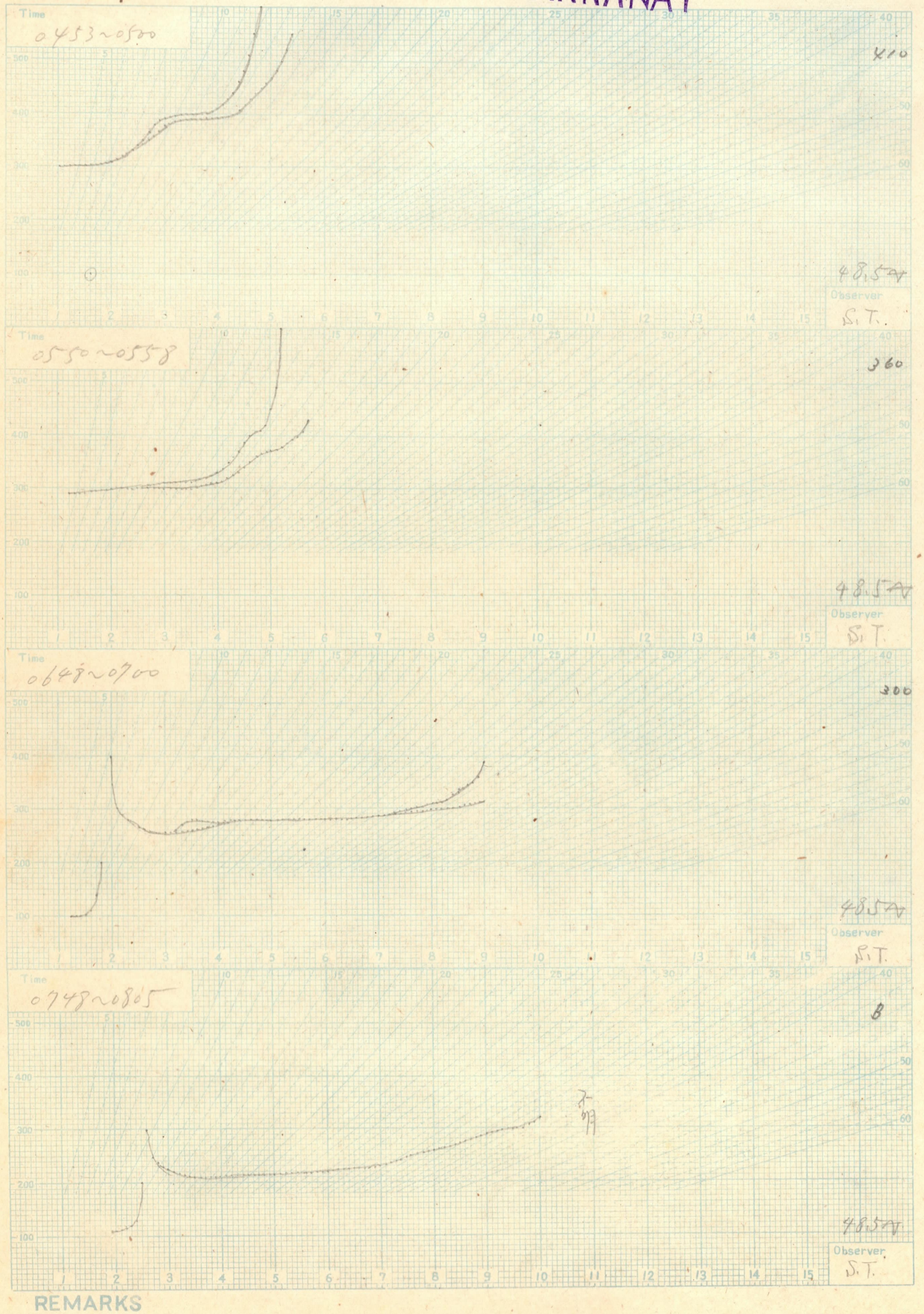
$f°F_2$	K.K	K.K	K.K	K.K
$h'F_2$	300A	300A	290	250
$f°F_1$				
$h'F_1$				
$f°E$				
$h'E$				
fE_s	2.8	3.0	1.9	1.6
ff_{min}	E	A	E	E
fE_{min}	E	E	E	E
3000 MUF	13.5	14.0	14.7	14.9
M_{3000}	3.0	2.7	2.7	2.9
$f°F_2$		5.1	5.5	5.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 19 1959 STATION WAKKANAI NO 7289



$f°F_2$	4.8	5.2	9.1	B
$h'F_2$	300	290	280	210
$f°F_1$		@	L	@
$h'F_1$		@	250	@
$f°E$		E	1.8	2.5
$h'E$		E	100	110
fE_s	E	E	$< f_E$	$< f_E$
ff_{min}	E	1.2	2.0	2.6
fE_{min}	E	E	1.2	1.9
3000 MUF	12.6	14.8	29.5	
M_{3000}	2.6	2.8	3.2	B

REMARKS

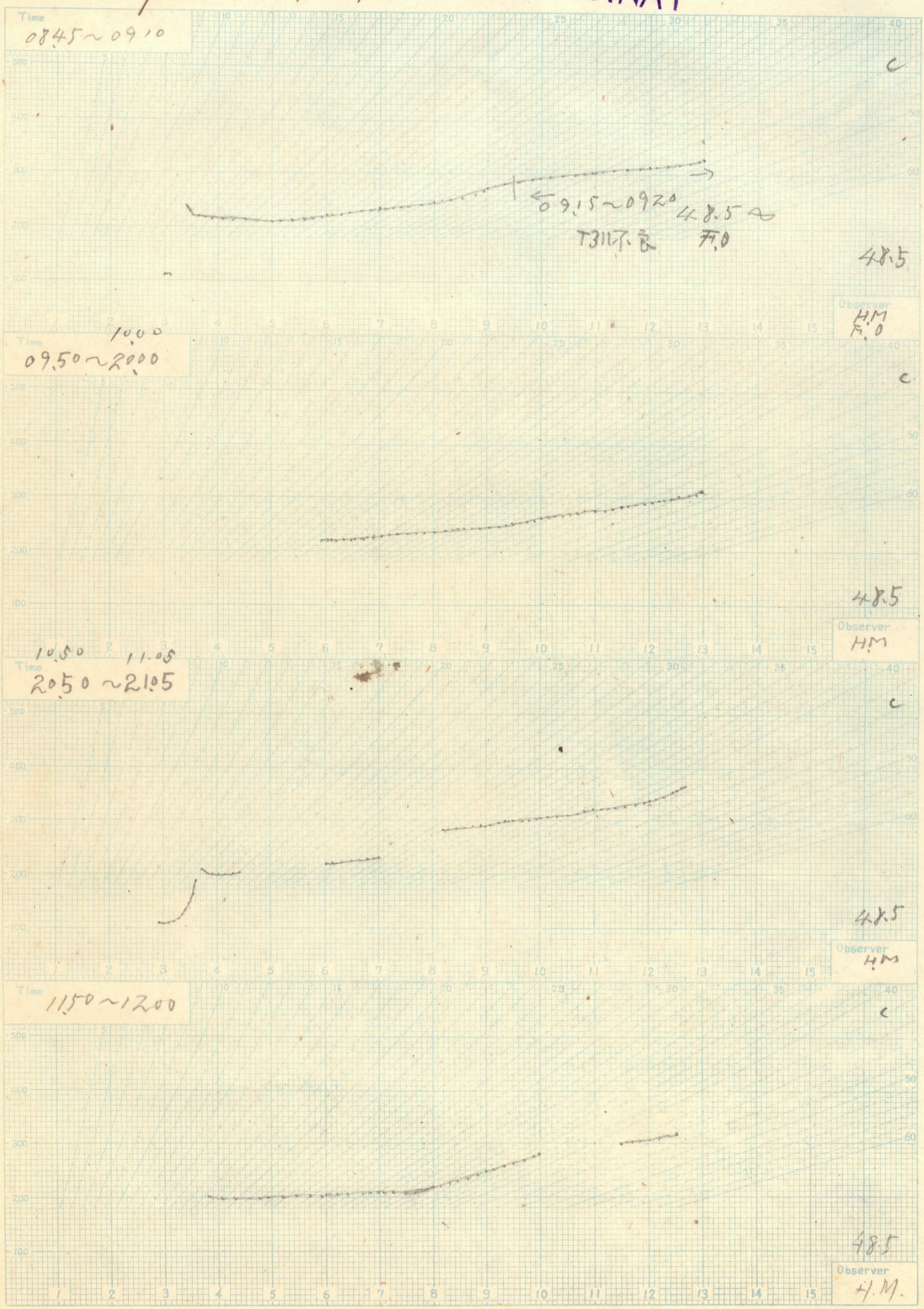
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 19 1949

STATION WAKKANAI

NO 7290



f^oF_2	C
$h'F_2$	210
f^oF_1	O
$h'F_1$	O
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	3.4
fE_{min}	(3.0)
3000 MUF	
M_{3000}	C

f^oF_2	C
$h'F_2$	220
f^oF_1	O
$h'F_1$	O
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	5.9
fE_{min}	B
3000 MUF	
M_{3000}	C

f^oF_2	C
$h'F_2$	280
f^oF_1	B B 220
$h'F_1$	200
f^oE	3.7
$h'E$	110
fE_s	$< f_E$
fF_{min}	3.7
fE_{min}	2.9
3000 MUF	
M_{3000}	C

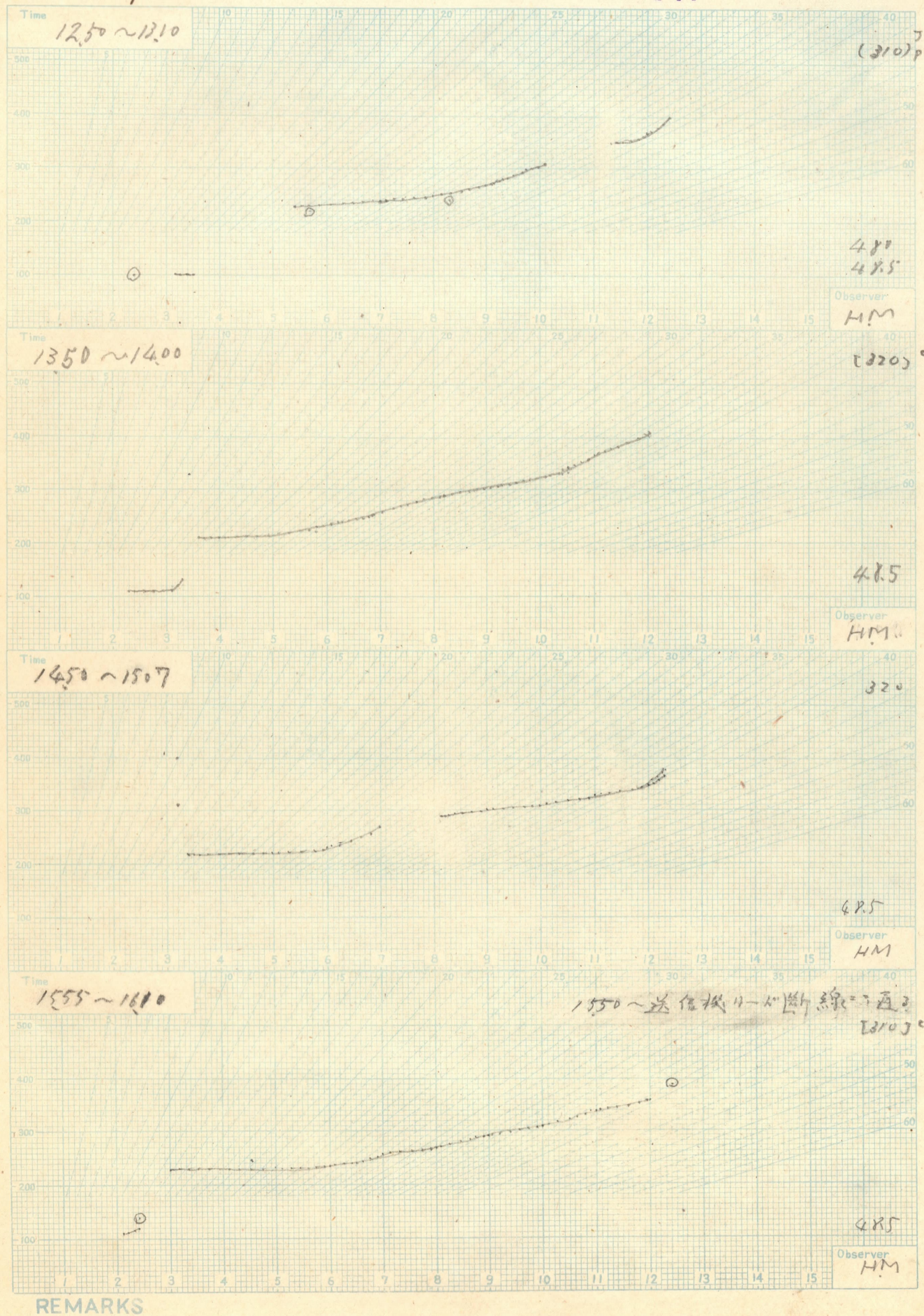
f^oF_2	C
$h'F_2$	200
f^oF_1	O
$h'F_1$	O
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	3.8
fE_{min}	B
3000 MUF	
M_{3000}	C

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 19 1949 STATION WAKKANAI NO 7291



$f°F_2$	(12.1) J P			
$h'F_2$	230			
$f°F_1$	0			
$h'F_1$	0			
$f°E$	B			
$h'E$	B			
fE_s	B			
ff_{min}	5.4			
fE_{min}	3.2			
3000 MUF				
M_{3000}	J			
$f°F_2$	[12.3] C	12.5	[VI.8] C	
$h'F_2$	210	290	230	
$f°F_1$	0	0 L	0	
$h'F_1$	0	0 220	0	
$f°E$	3.3	B	B	
$h'E$	110	B	110	
fE_s	B	B	B	
ff_{min}	3.6	3.4	3.0	
fE_{min}	2.3	B	2.1	
3000 MUF		40.0		
M_{3000}	C	3.2	C	

REMARKS

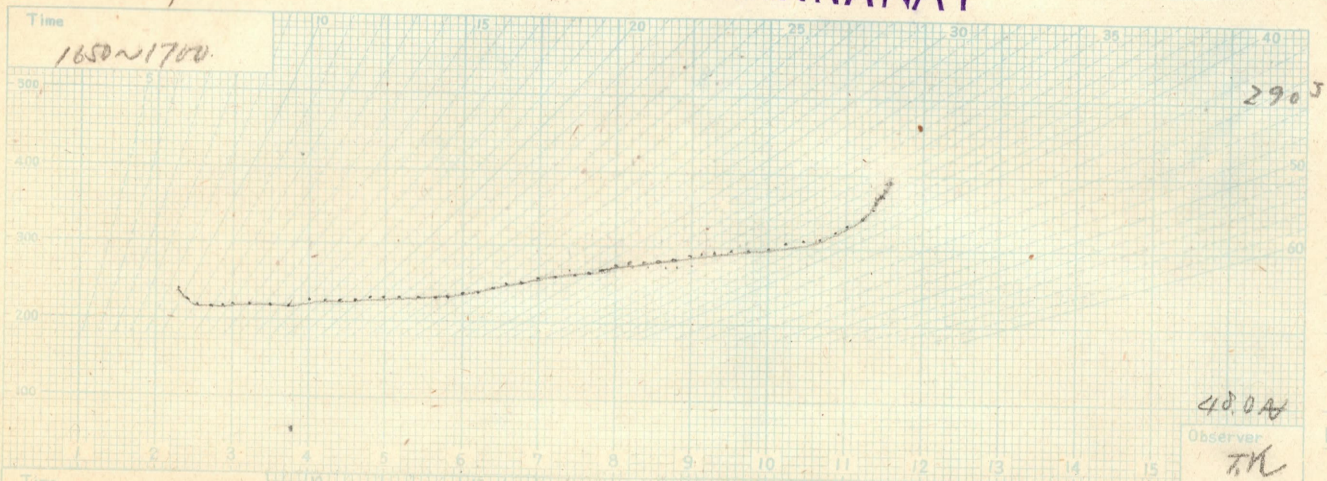
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 19 1949 STATION WAKKANAI NO 7292

VIRTUAL HEIGHT IN KM

Time 1650~1700



290 J

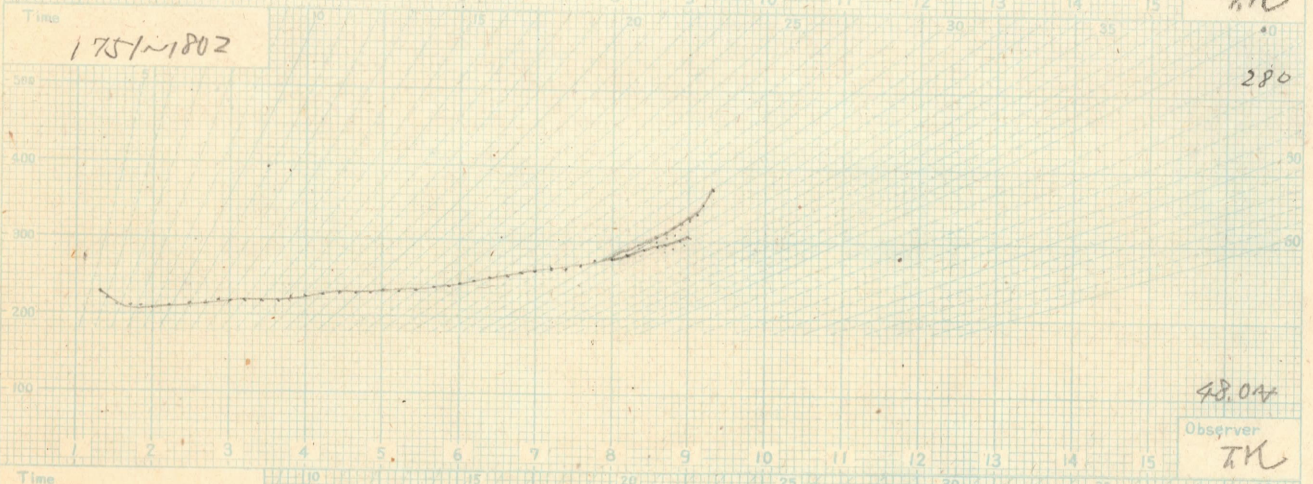
48.0A

Observer T.K

f^0F_2	11.1 J
$h'F_2$	220
f^0F_1	0
$h'F_1$	0
f^0E	B
$h'E$	B
fE_s	B
fF_{min}	2.3
fE_{min}	B
3000 MUF	
M_{3000}	J

VIRTUAL HEIGHT IN KM

Time 1751~1802



280

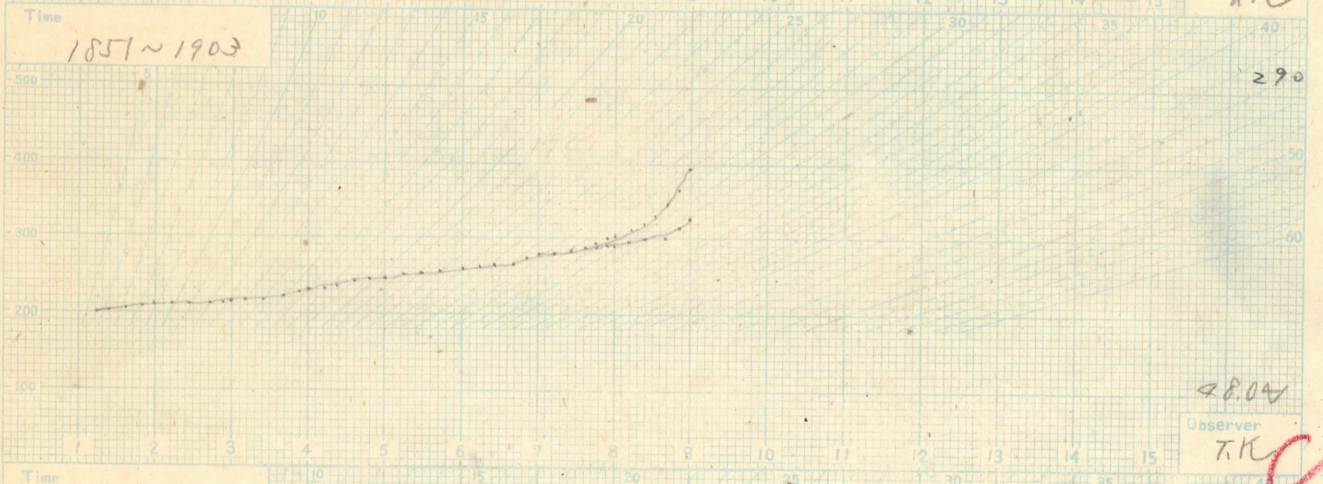
48.0A

Observer T.K

f^0F_2	9.5
$h'F_2$	210
f^0F_1	0
$h'F_1$	0
f^0E	E
$h'E$	E
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	31.0
M_{3000}	3.2

VIRTUAL HEIGHT IN KM

Time 1851~1903



290

48.0A

Observer T.K

f^0F_2	9.1
$h'F_2$	200
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	29.8
M_{3000}	3.2

VIRTUAL HEIGHT IN KM

Time 2251~2300

1940~2240 停電



320

49.0A

Observer T.K

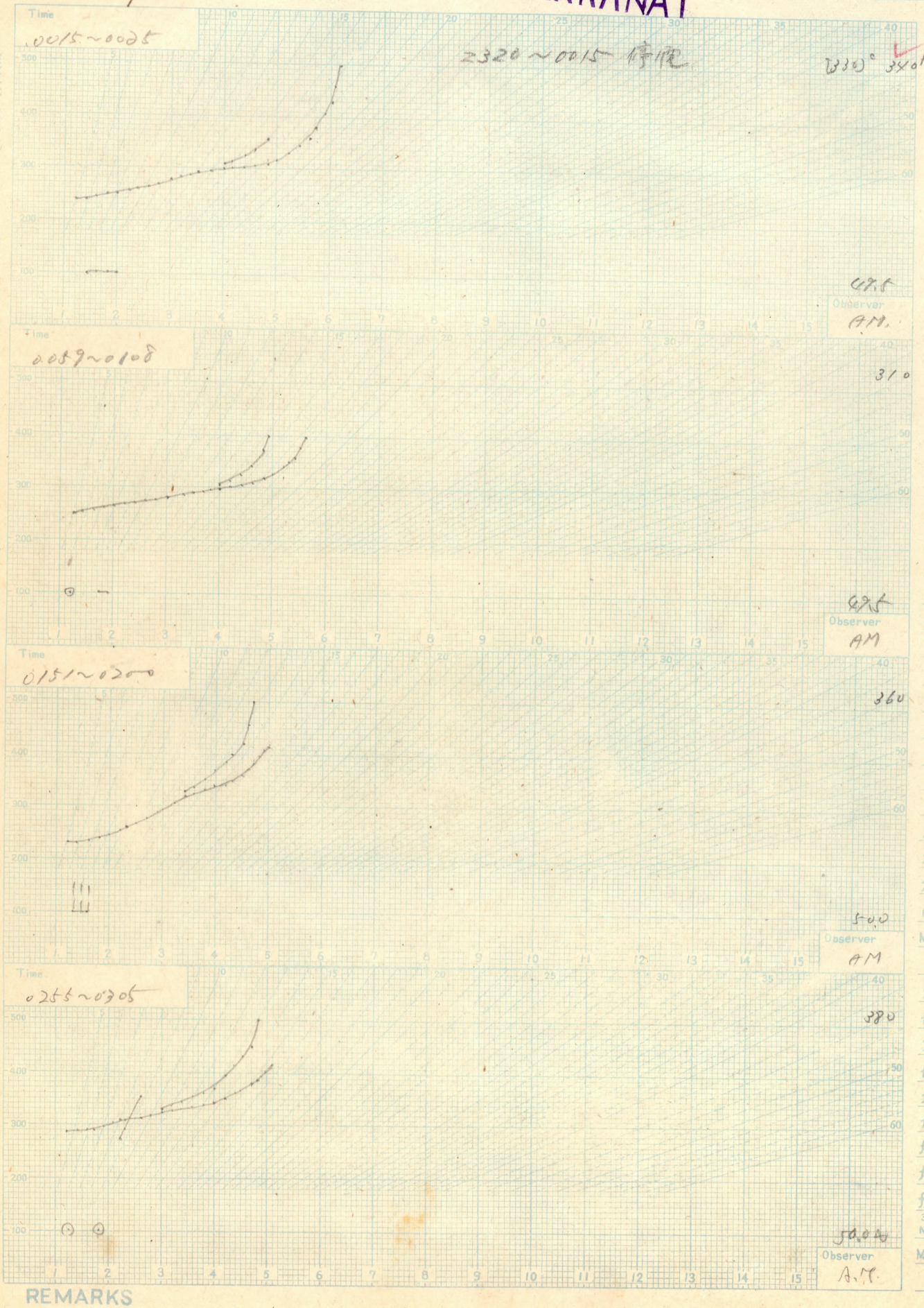
f^0F_2	5.2
$h'F_2$	260
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	1.5
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	16.5
M_{3000}	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 20 1949 STATION WAKKANAI NO 7293



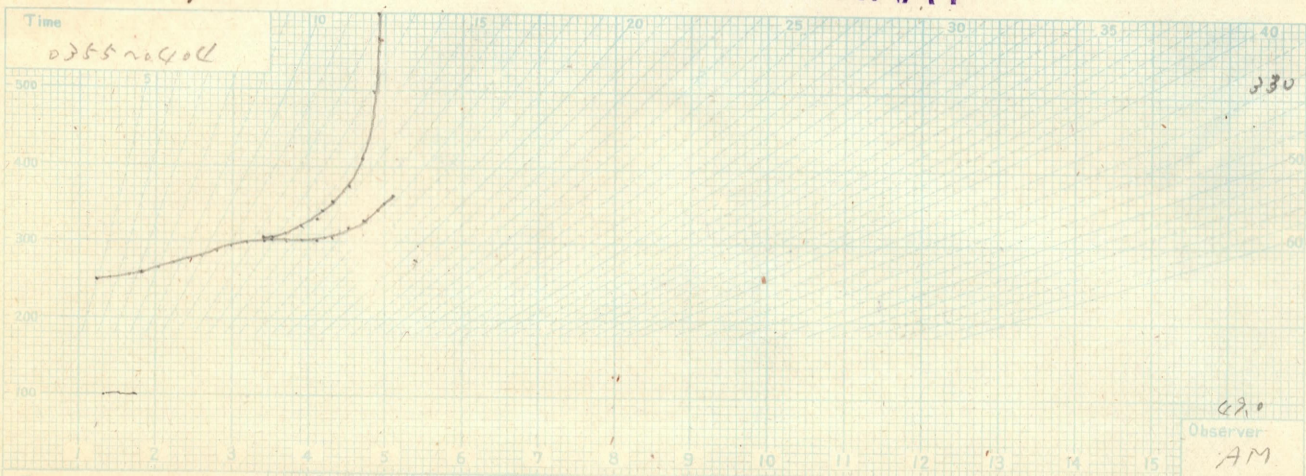
f^0F_2	[5.4]C 5.5P			
$h'F_2$	[250]C 240			
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	C 2.0			
fF_{min}	[1.2]C 1.2			
fE_m	[1.3]C 1.4			
3000 MUF	16.0			
M_{3000}	[2.9]C 2.9P			
f^0F_2	5.0			
$h'F_2$	250			
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	(1.9)			
fF_{min}	1.2			
fE_{min}	(1.7)			
3000 MUF	15.8			
M_{3000}	2.1			
f^0F_2	4.7			
$h'F_2$	230			
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	1.6F			
fF_{min}	1.2			
fE_{min}	1.3			
3000 MUF	13.6			
M_{3000}	2.9			
f^0F_2	4.8			
$h'F_2$	290			
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	B			
fF_{min}	1.2			
fE_{min}	B			
3000 MUF	13.5			
M_{3000}	2.8			

IONOSPHERIC RECORD

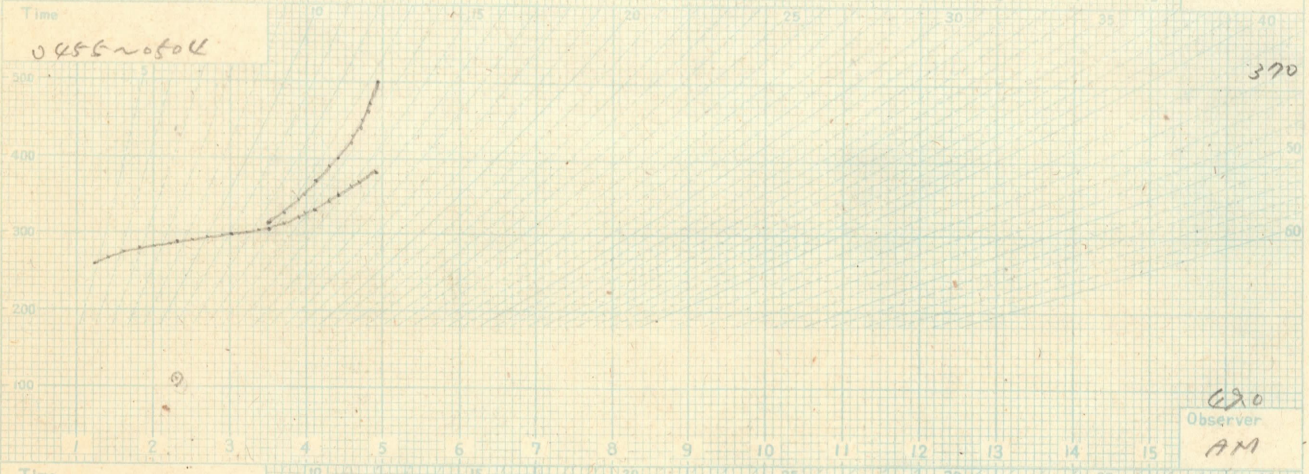
135°E MEAN TIME

DATE Feb 20 1949 STATION WAKKANAI NO 7294

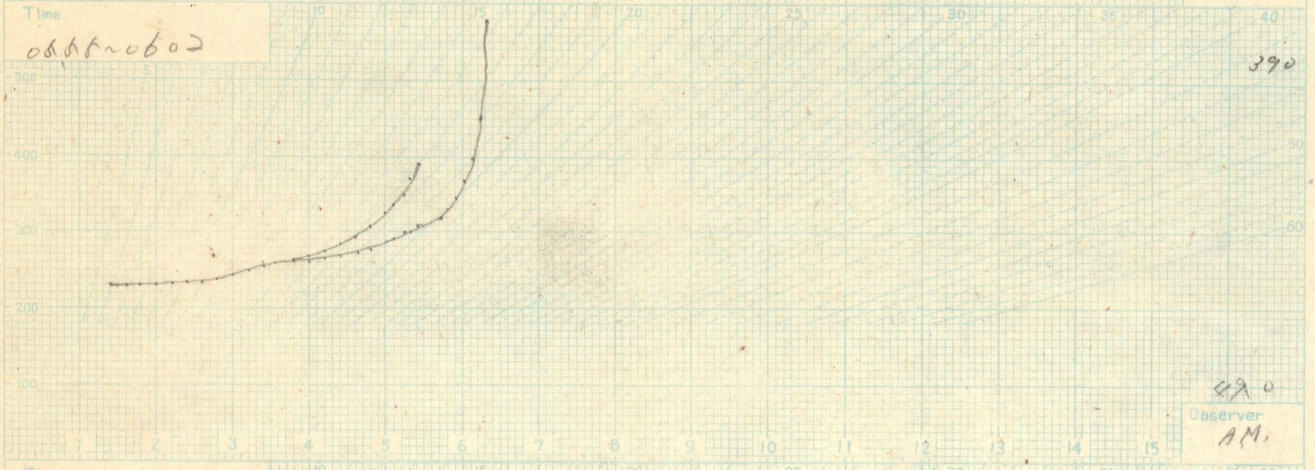
VIRTUAL HEIGHT IN KM



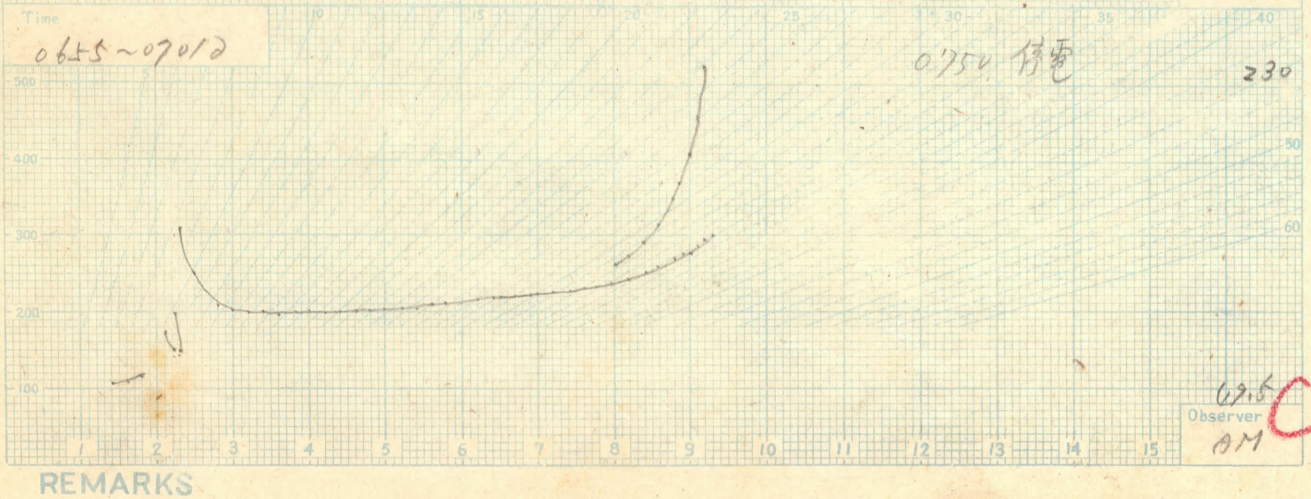
$f°F_2$ 4.9
$h'F_2$ 250
$f°F_1$
$h'F_1$
$f°E$
$h'E$
f_{Es} 1.7
f_{Fmin} 1.2
f_{Emin} 1.3
3000 MUF 14.5
M_{3000} 2.9



$f°F_2$ 5.0
$h'F_2$ 260
$f°F_1$
$h'F_1$
$f°E$
$h'E$
f_{Es} E
f_{Fmin} 1.2
f_{Emin} E
3000 MUF 13.8
M_{3000} 2.7



$f°F_2$ 8.5
$h'F_2$ 230
$f°F_1$ 0
$h'F_1$ 0
$f°E$ E
$h'E$ E
f_{Es} E
f_{Fmin} 1.4
f_{Emin} E
3000 MUF 12.5
M_{3000} 3.1



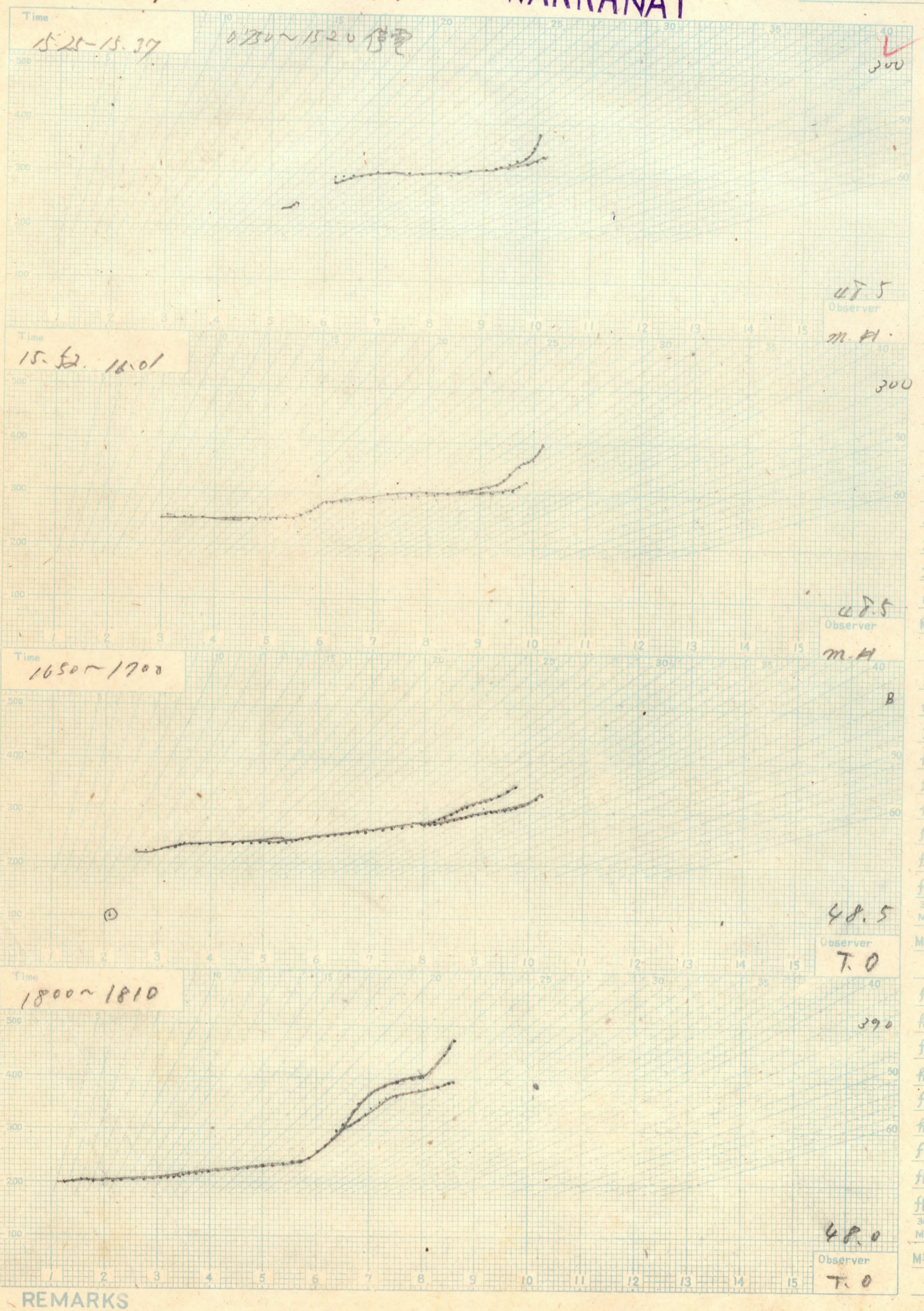
$f°F_2$ 9.2
$h'F_2$ 200
$f°F_1$ 0
$h'F_1$ 0
$f°E$ 2.3
$h'E$ 110
f_{Es} 2.3
f_{Fmin} 2.3
f_{Emin} 1.4
3000 MUF 31.7
M_{3000} 3.4

REMARKS

IONOSPHERIC RECORD

- 135°E MEAN TIME

DATE Feb 20 1949 STATION WAKKANAI NO 7295



f^oF_2	10.1
$h'F_2$	300
f^oF_1	L
$h'F_1$	230
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	5.2
fE_{min}	B
3000 MUF	34.0
M_{3000}	3.3

f^oF_2	10.3
$h'F_2$	280
f^oF_1	L
$h'F_1$	250
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	3.0
fE_{min}	B
3000 MUF	33.0
M_{3000}	3.2

f^oF_2	B
$h'F_2$	220
f^oF_1	A
$h'F_1$	A
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	2.6
fE_{min}	B
3000 MUF	
M_{3000}	B

f^oF_2	8.8
$h'F_2$	200
f^oF_1	A
$h'F_1$	A
f^oE	E
$h'E$	E
fE_s	E
fF_{min}	1.1
fE_{min}	E
3000 MUF	24.8
M_{3000}	2.8

REMARKS

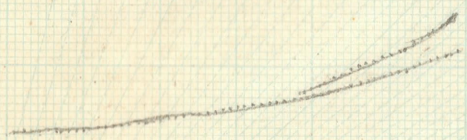
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 20 1949 STATION WAKKANAI NO 7296

VIRTUAL HEIGHT IN KM

Time 1850~1900



(320)P

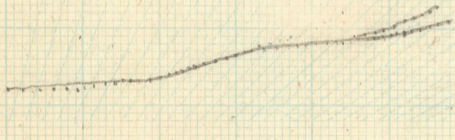
48.0

Observer F.O

f^0F_2 (2.4)P
$h'F_2$ 210
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} 1.1
fE_{min} E
3000 MUF 22.2
M_{3000} (3.0)P

VIRTUAL HEIGHT IN KM

Time 1953~2005



B

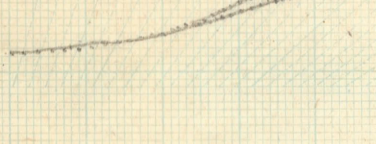
48.5

Observer T.O

f^0F_2 B
$h'F_2$ 220
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF
M_{3000} B

VIRTUAL HEIGHT IN KM

Time 2050~2100



B

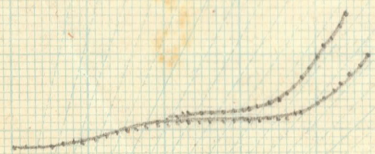
48.0

Observer T.O

f^0F_2 B
$h'F_2$ 220
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF
M_{3000} B

VIRTUAL HEIGHT IN KM

Time 2150~2158



330

48.5

Observer T.O

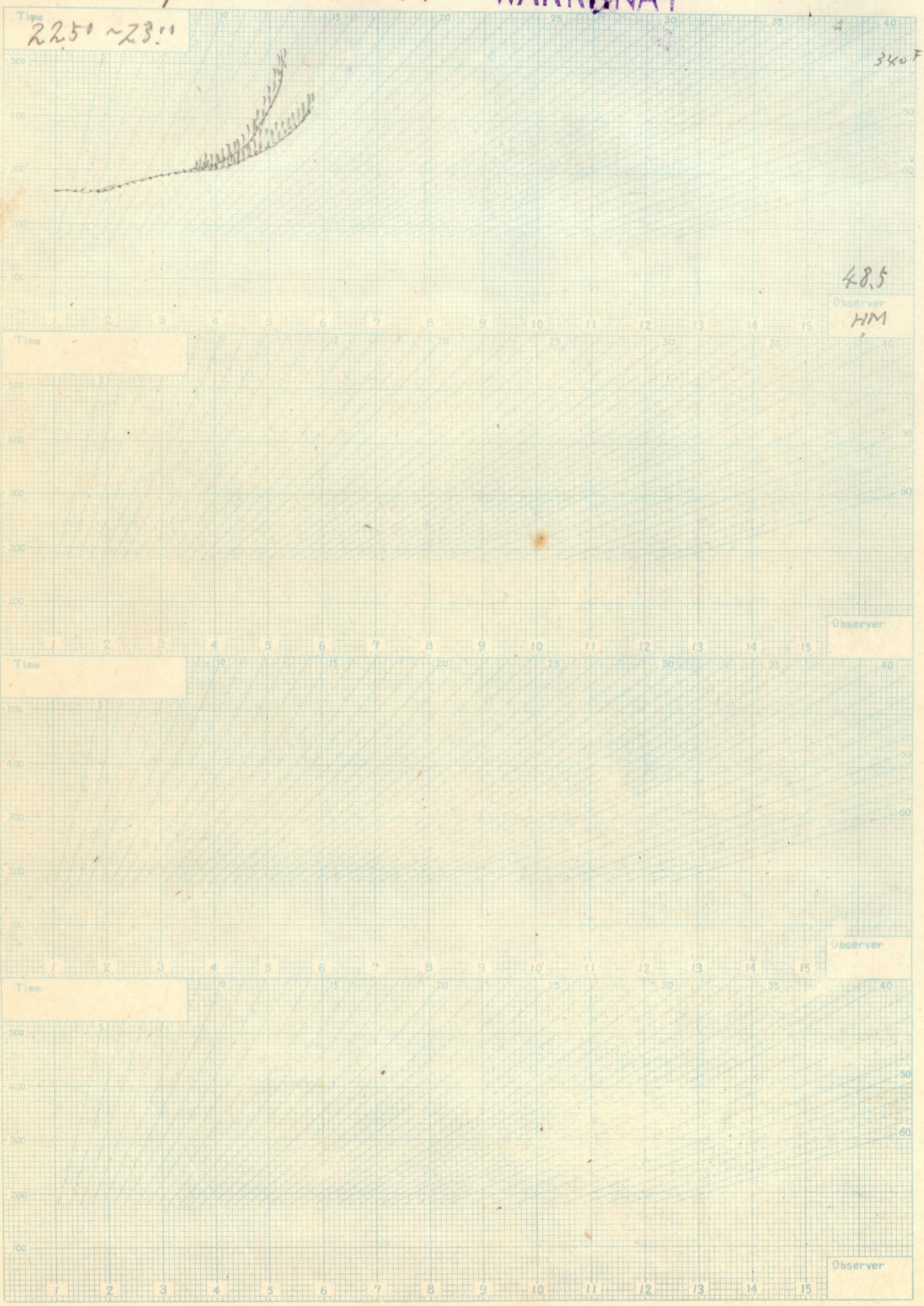
f^0F_2 5.6
$h'F_2$ 280
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 15.6
M_{3000} 2.7

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 20 1949 STATION WAKKANAI NO 7297



f^oF_2	5.2F
$h'F_2$	260
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	15.0
M_{3000}	2.8F

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21 1949 STATION WAKKANAI NO 7298

VIRTUAL HEIGHT IN KM

Time 2355~0000

410

48.5

Observer T.O

f^0F_2 5.0
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 13.0
M_{3000} 2.6

Time 0050~0100

410F

48.5

Observer HM

f^0F_2 5.0F
$h'F_2$ 310F
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 13.0
M_{3000} 2.6F

Time 0155~0200

410

48.5

Observer HM

f^0F_2 5.0
$h'F_2$ 310
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
fF_{min} E
fE_{min} E
3000 MUF 13.0
M_{3000} 2.6

Time 0255~0313

330

48.5

Observer HM

f^0F_2 4.9
$h'F_2$ 250
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 1.8
fF_{min} 1.2
fE_{min} 1.2
3000 MUF 14.0
M_{3000} 2.8

REMARKS

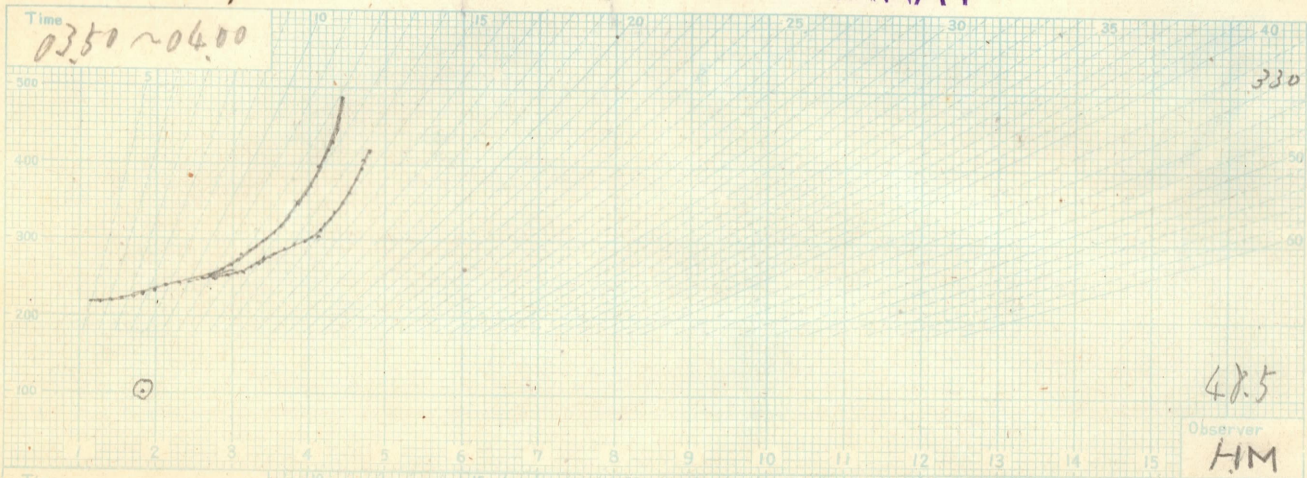
IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21st 1949 STATION WAKKANAI NO 7299

VIRTUAL HEIGHT IN KM

Time 0350 ~ 0400



330

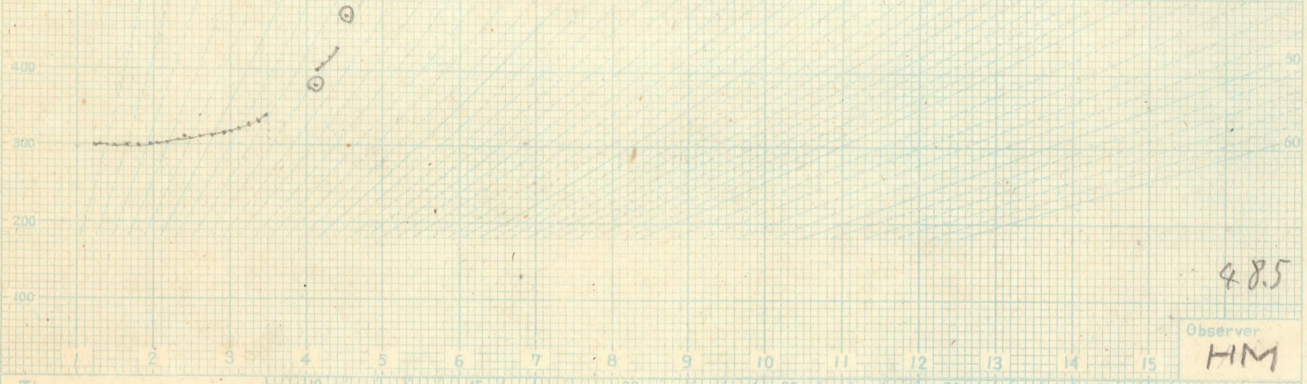
48.5

Observer HM

f^0F_2	4.5
$h'F_2$	220
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	1.1
fE_{min}	E
3000 MUF	13.0
M_{3000}	2.8

Time 0450 ~ 0520

発振下る



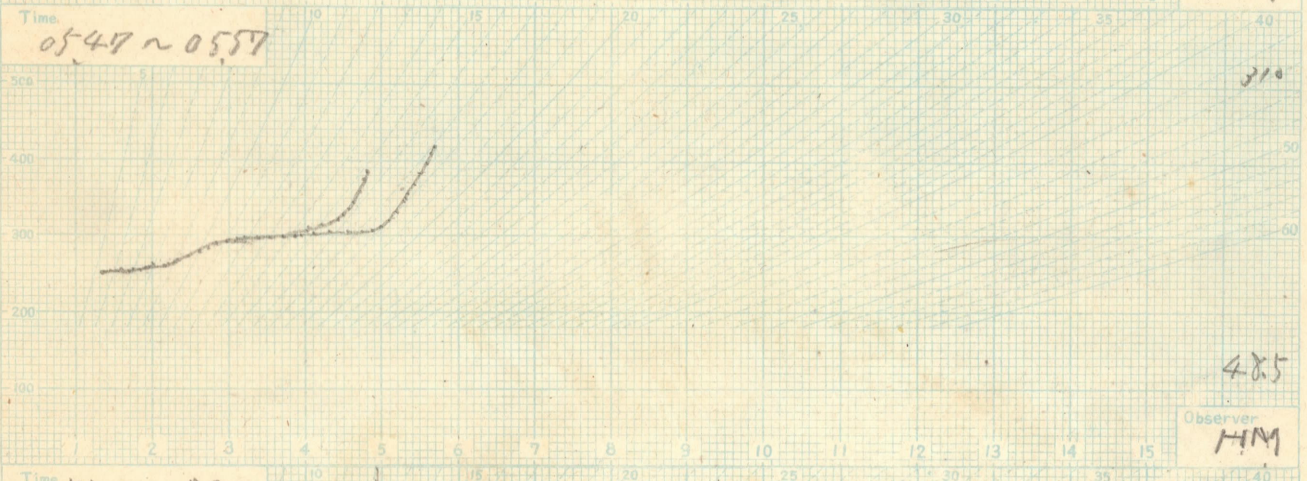
(380)

48.5

Observer HM

f^0F_2	(4.6)
$h'F_2$	300
f^0F_1	
$h'F_1$	
f^0E	
$h'E$	
fE_s	E
ff_{min}	1.2
fE_{min}	E
3000 MUF	13.0
M_{3000}	(2.8)

Time 0547 ~ 0557



310

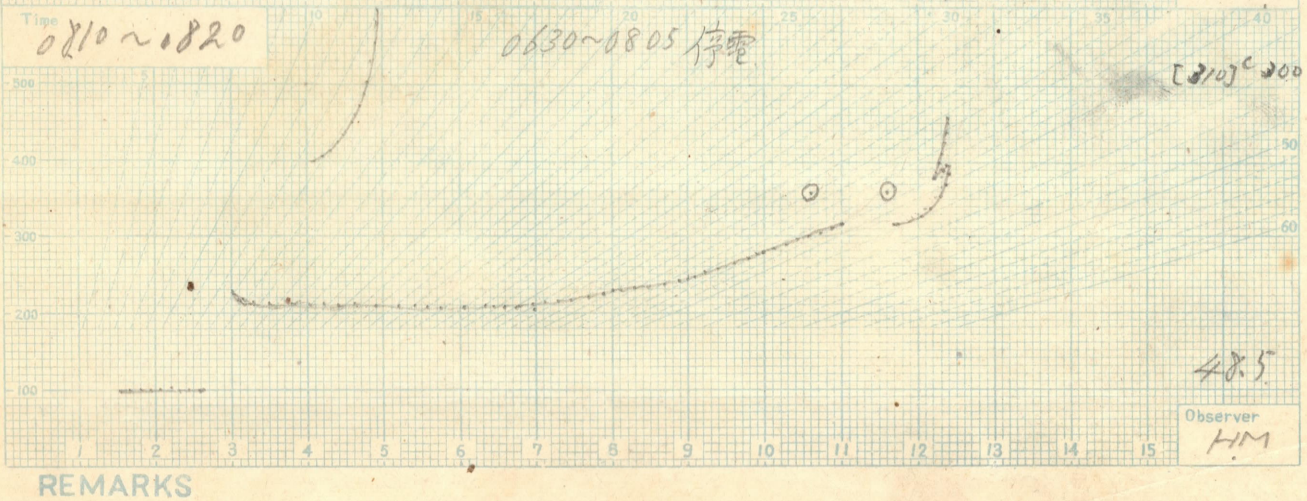
48.5

Observer HM

f^0F_2	3.0
$h'F_2$	250
f^0F_1	C
$h'F_1$	C
f^0E	E
$h'E$	E
fE_s	E
ff_{min}	1.3
fE_{min}	E
3000 MUF	15.8
M_{3000}	3.1

Time 0810 ~ 0820

0630~0805 停電



[310]C 300

48.5

Observer HM

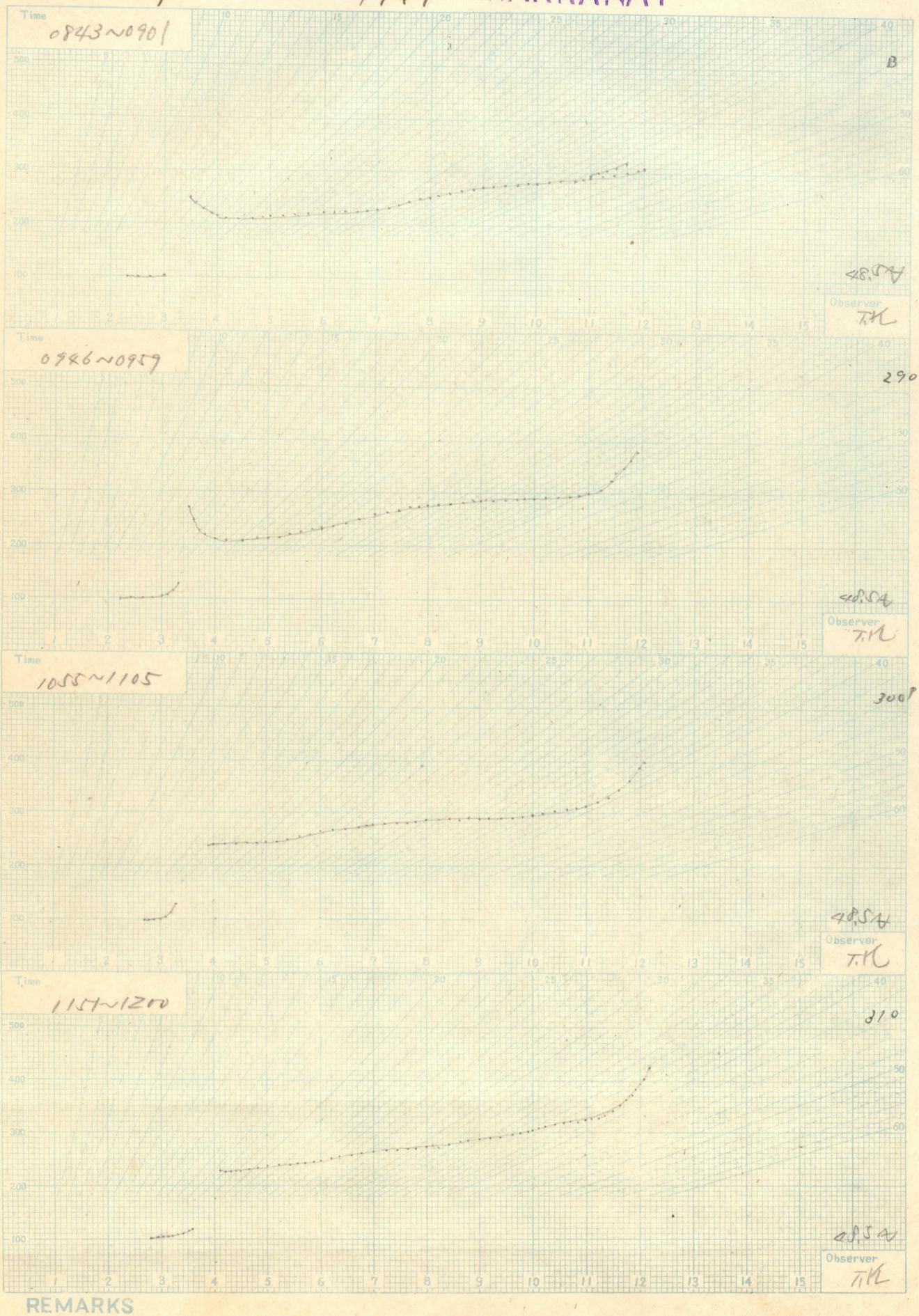
f^0F_2	[3.8]C(12.5)
$h'F_2$	[230]C 210
f^0F_1	C C
$h'F_1$	C C
f^0E	C B
$h'E$	C (100)
fE_s	C B
ff_{min}	[2.2]C 2.0
fE_{min}	C 1.5
3000 MUF	39.0
M_{3000}	[3.1]C(3.1)

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21st 1949 STATION WAKKANAI NO 7300



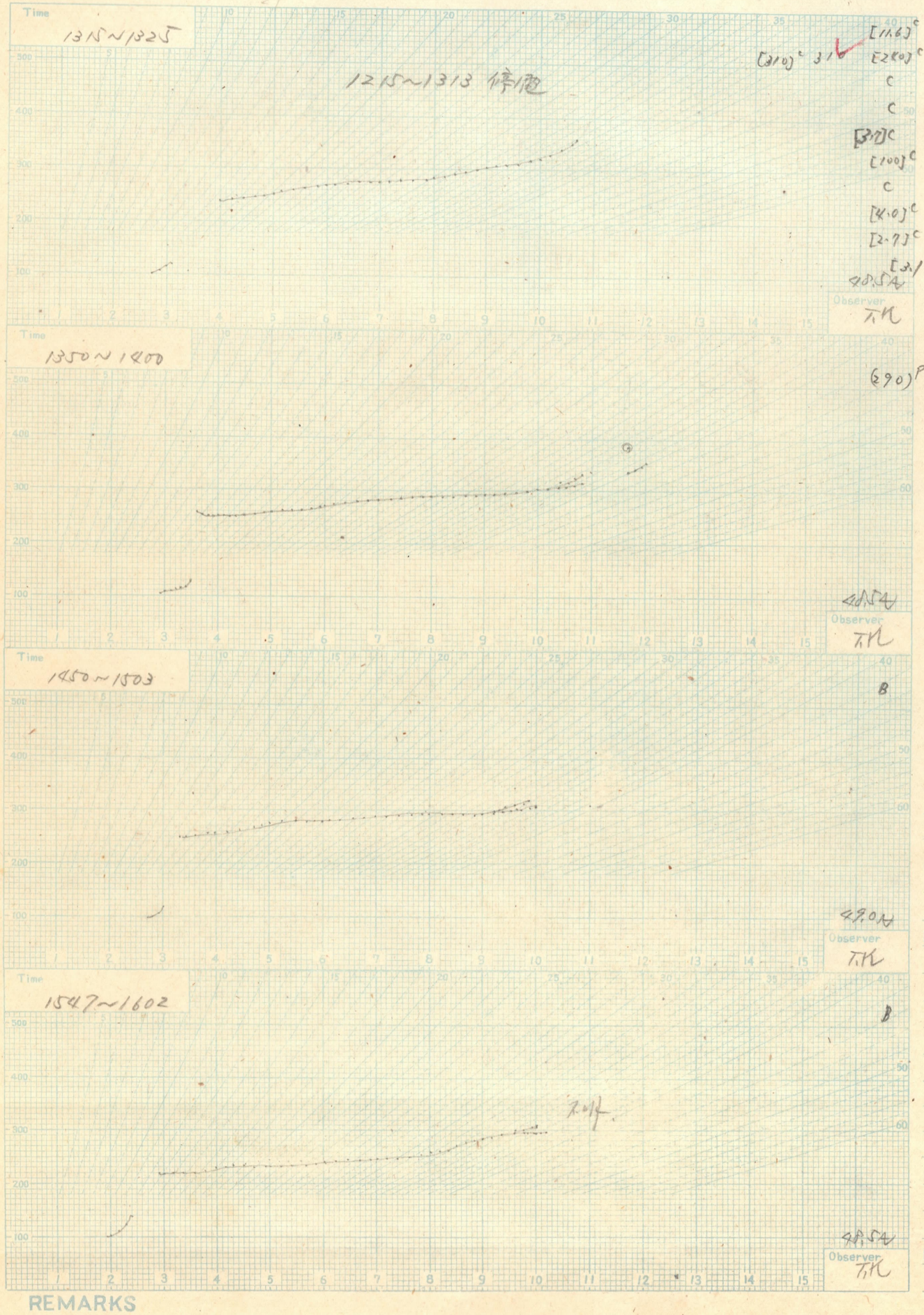
$f°F_2$	B	$f°F_2$	12.2 P	$f°F_2$	12.3 P	$f°F_2$	12.4
$h'F_2$	210	$h'F_2$	210	$h'F_2$	240	$h'F_2$	230
$f°F_1$	0	$f°F_1$	0	$f°F_1$	0	$f°F_1$	0
$h'F_1$	0	$h'F_1$	0	$h'F_1$	0	$h'F_1$	0
$f°E$	(3.8) B	$f°E$	3.4	$f°E$	3.3	$f°E$	(3.9) B
$h'E$	(100)	$h'E$	100	$h'E$	100	$h'E$	100
fE_s	B	fE_s	2fE	fE_s	B	fE_s	B
fF_{min}	3.5	fF_{min}	3.5	fF_{min}	3.9	fF_{min}	4.1
fE_{min}	2.3	fE_{min}	2.2	fE_{min}	2.7	fE_{min}	2.8
3000 MUF		3000 MUF	40.8	3000 MUF	39.0	3000 MUF	39.0
M_{3000}	B	M_{3000}	3.3 P	M_{3000}	3.1 P	M_{3000}	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21st 1949 STATION WAKKANAI NO 7301



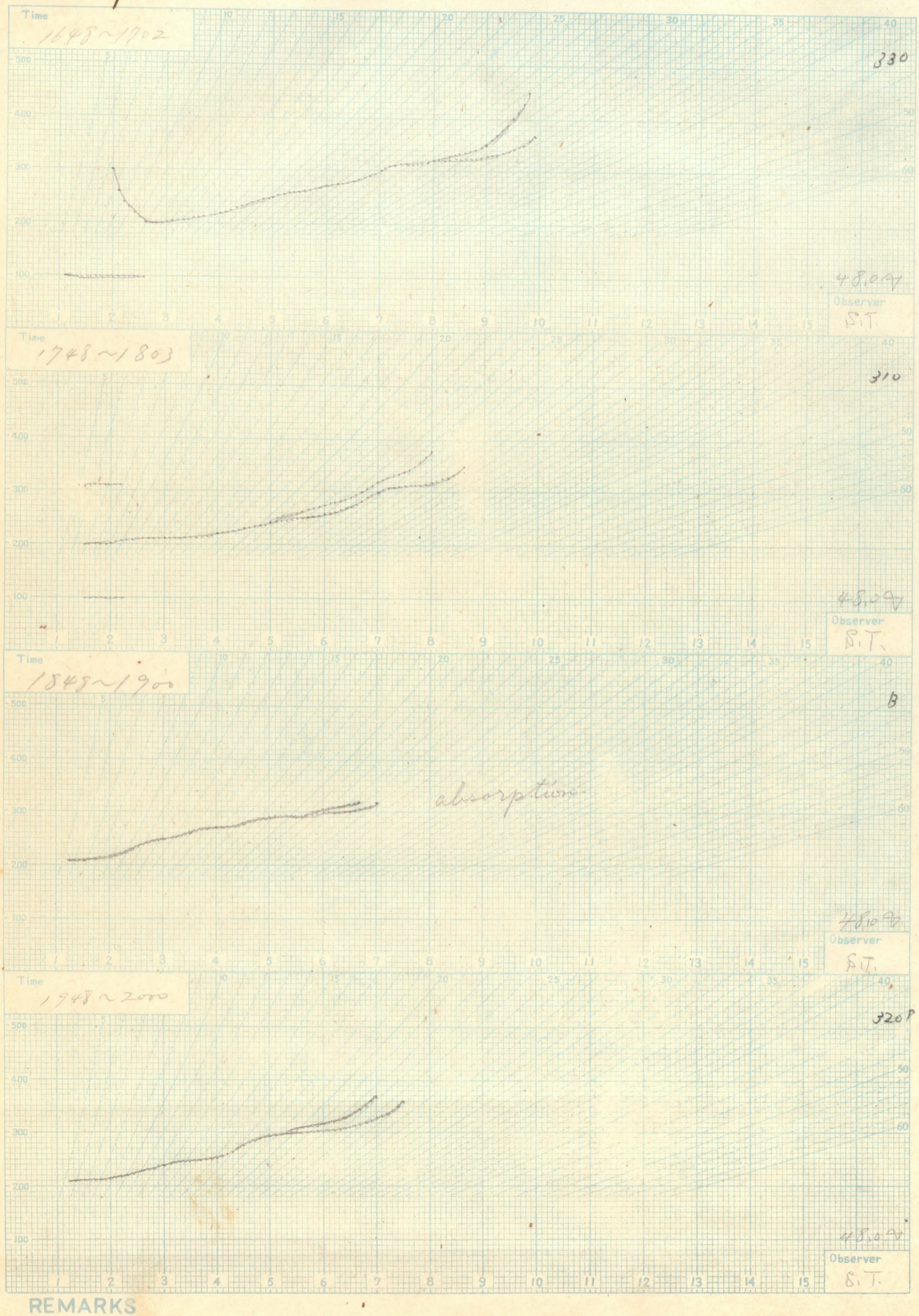
REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21st 1949 STATION WAKKANAI NO 7302

VIRTUAL HEIGHT IN KM



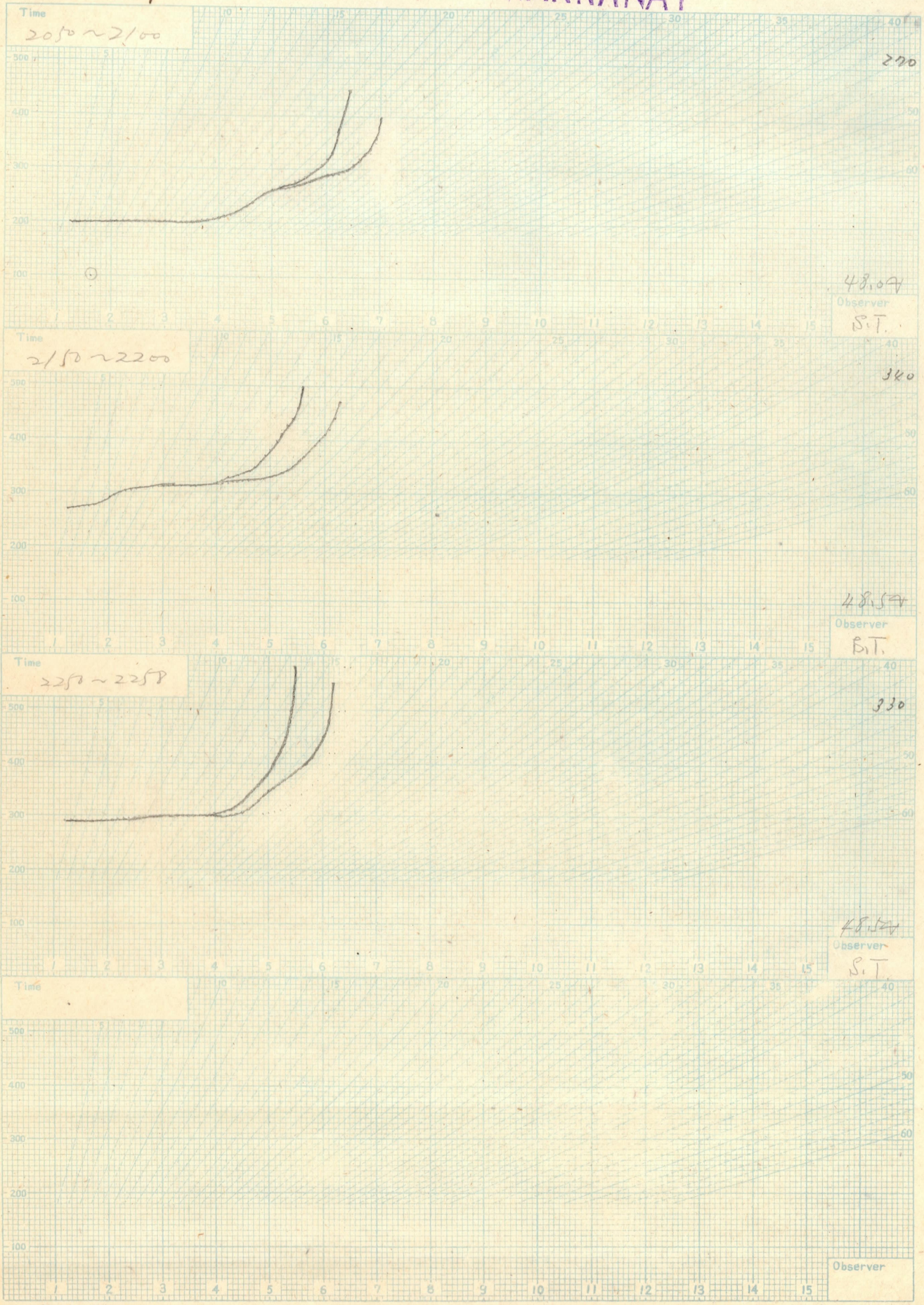
$f°F_2$	9.9	8.3	B	11.3P
$h'F_2$	200	200	210	210
$f°F_1$	∩	⊙		
$h'F_1$	∩	∩		
$f°E$	(1.9)	⊙E		
$h'E$	A	⊙E		
fE_s	2.6	2.2	E	E
fF_{min}	2.0	1.5	1.2	1.2
fE_{min}	1.1	1.5	E	E
3000 MUF	30.0	25.9		22.8P
M_{3000}	3.0	3.1	B	3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 21st 1949 STATION WAKKANAI NO 7303



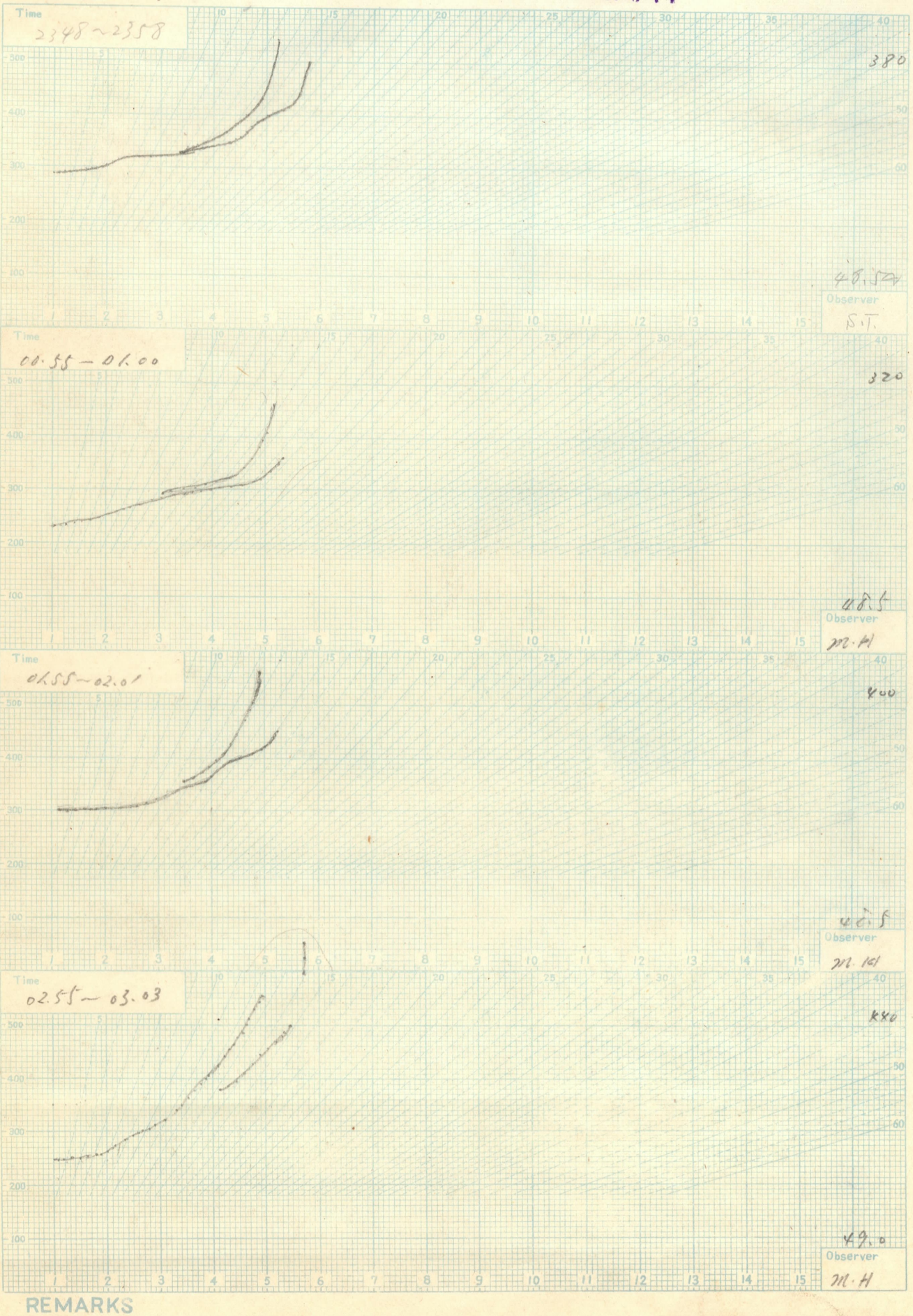
f^0F_2	6.5	5.4	5.5	
$h'F_2$	200	270	290	
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	E	E	E	
ff_{min}	1.2	1.2	1.2	
fE_{min}	E	E	E	
3000 MUF	21.3	16.0	16.0	
M_{3000}	3.2	2.9	2.9	

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb. 22. 1949 STATION WAKKANAI NO 7304



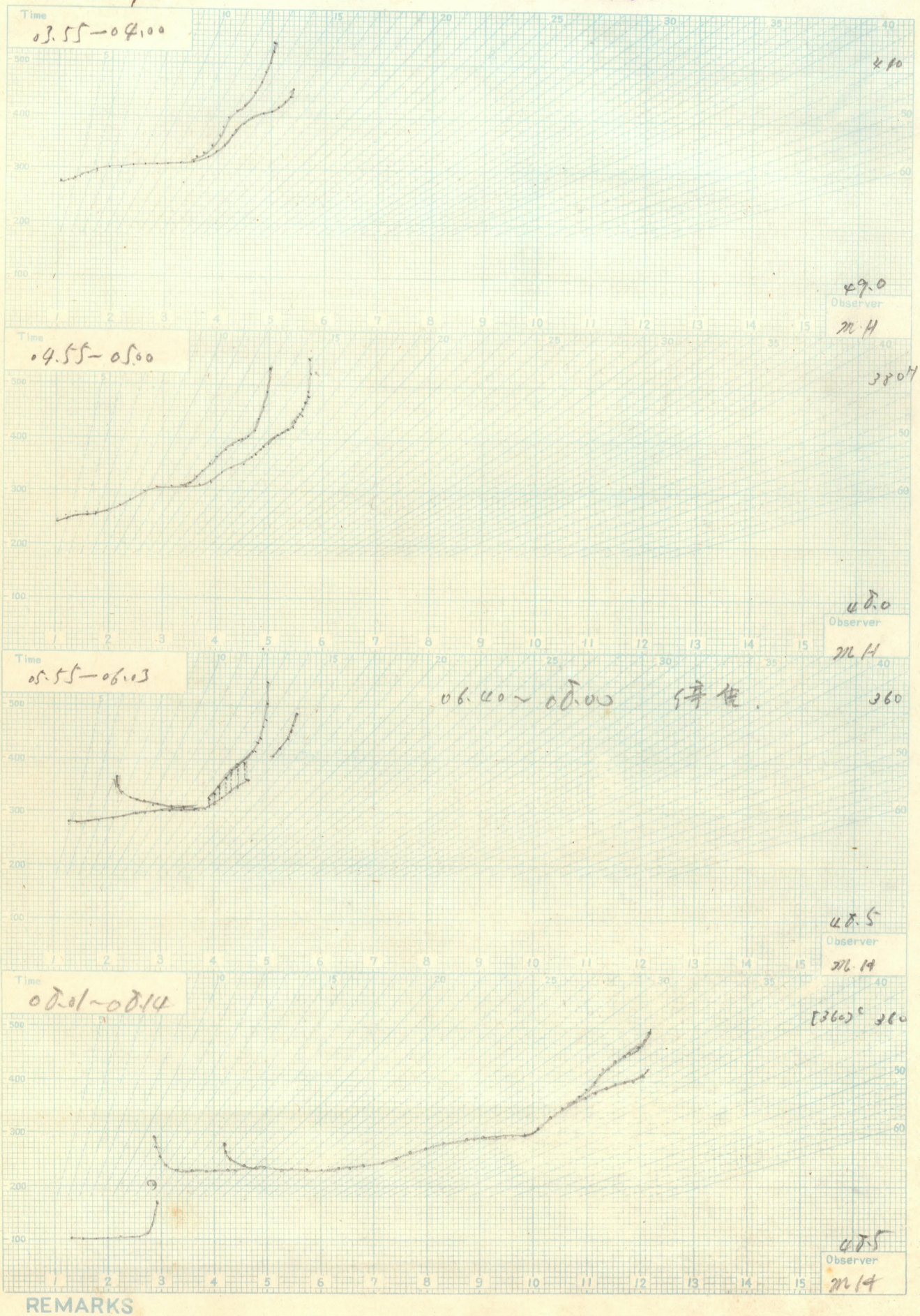
$f°F_2$	5.2	5.2	4.9	5.1
$h'F_2$	270	230	300	250
$f°F_1$				
$h'F_1$				
$f°E$		E		
$h'E$		E		
fE_s	E	E	E	E
fF_{min}	E	E	1.1	E
fE_{min}	E	E	E	E
3000 MUF	14.5	15.7	13.0	12.5
M_{3000}	2.7	3.0	2.6	2.4

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 22 1949 STATION WAKKANAI NO 7305



	03.55–04.00	04.55–05.00	05.55–06.03	06.01–06.14
$f°F_2$	5.2	5.0 M	5.0	[8.7]C 12.4
$h'F_2$	280	240 M	280	[260]C 280
$f°F_1$			Q	C Q
$h'F_1$			Q	C Q
$f°E$			E	C 2.9
$h'E$			E	C 100
fE_s	E	E	E	C 2fE
fF_{min}	E	E	1.3	[2.1]C 2.9
fE_{min}	E	E	E	C 1.3
3000 MUF	13.6	14.2	14.4	36.8
M_{3000}	2.6	2.8 M	2.8	[2.8]C 2.9
440		380 M	360	[360]C 360
49.0		46.0	48.5	48.5
Observer	M H	M H	M. H	M H

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 22 1949 STATION WAKKANAI NO 7306

VIRTUAL HEIGHT IN KM

Time 1850~0700

(300)P

48.5

Observer T.O

$f°F_2$	(13.4)P
$h'F_2$	280
$f°F_1$	⊖ L
$h'F_1$	⊖ 220
$f°E$	3.4
$h'E$	100
fE_s	< f_E
fF_{min}	3.4
fE_{min}	1.4
3000 MUF	45.0
M_{3000}	(3.3)P

VIRTUAL HEIGHT IN KM

Time 0953~1003

C

48.5

Observer T.O

$f°F_2$	C
$h'F_2$	270
$f°F_1$	⊖ L
$h'F_1$	⊖ 200
$f°E$	3.4
$h'E$	100
fE_s	< f_E
fF_{min}	3.4
fE_{min}	1.4
3000 MUF	
M_{3000}	C

VIRTUAL HEIGHT IN KM

Time 1145~1200

C C

1020~1145
ロータリスイッチ修理

48.5

Observer T.O

$f°F_2$	C C
$h'F_2$	[280]C 280
$f°F_1$	C ⊖ L
$h'F_1$	C ⊖ 210
$f°E$	[3.5]C 3.5
$h'E$	[100]C 100
fE_s	C < f_E
fF_{min}	[3.5]C 3.6
fE_{min}	[1.5]C 1.5
3000 MUF	
M_{3000}	C C

VIRTUAL HEIGHT IN KM

Time 1315~1330

C

1215~1315
停電

48.5

Observer T.O

$f°F_2$	C [illegible]
$h'F_2$	[270]C 260
$f°F_1$	C L
$h'F_1$	[C] 210
$f°E$	[3.4]C 3.3
$h'E$	[100]C 100
fE_s	C < f_E
fF_{min}	[3.4]C 3.3
fE_{min}	[1.5]C 1.5
3000 MUF	36.4
M_{3000}	C 3.2

REMARKS

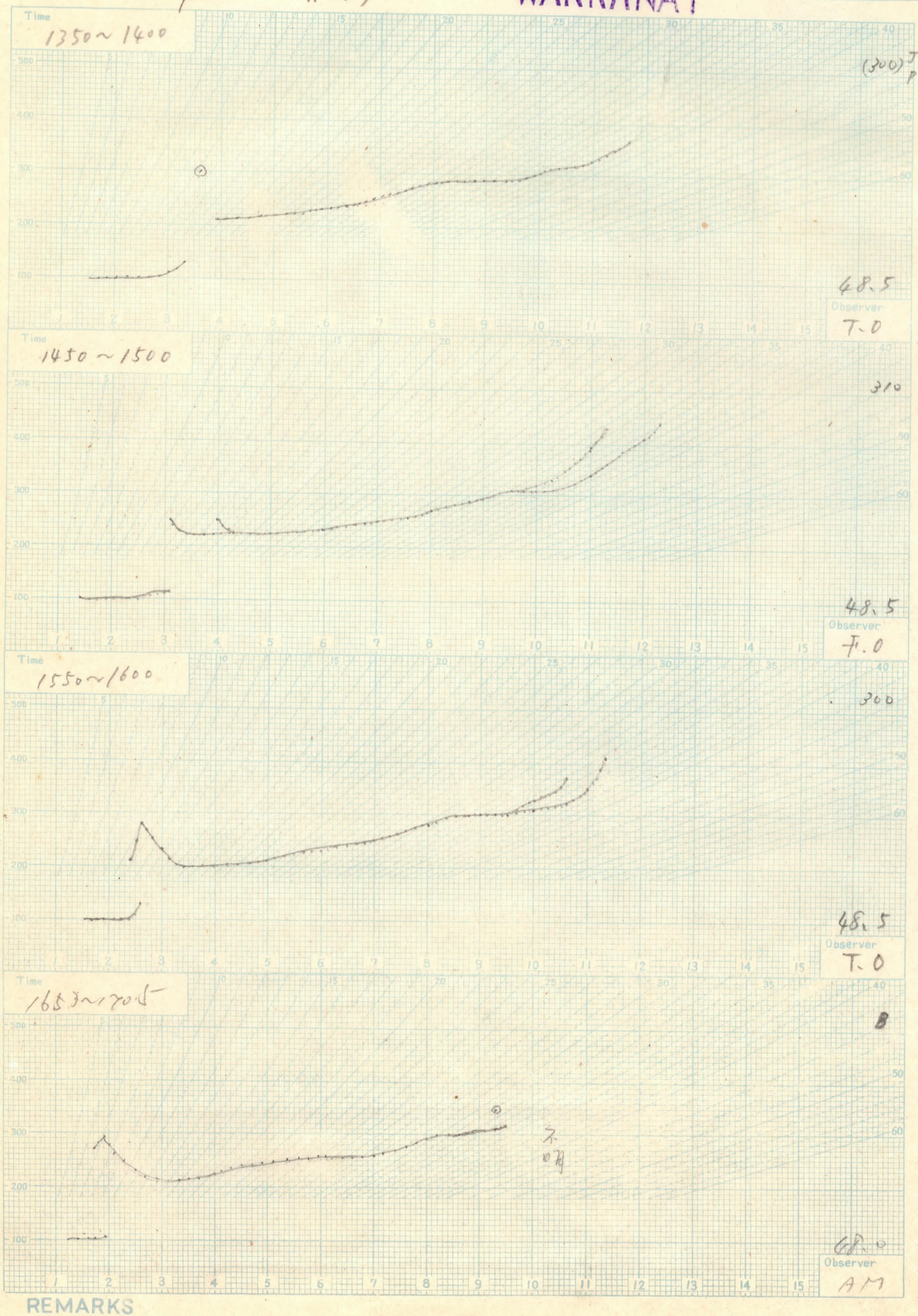
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 22.1949

STATION WAKKANAI

NO 7307



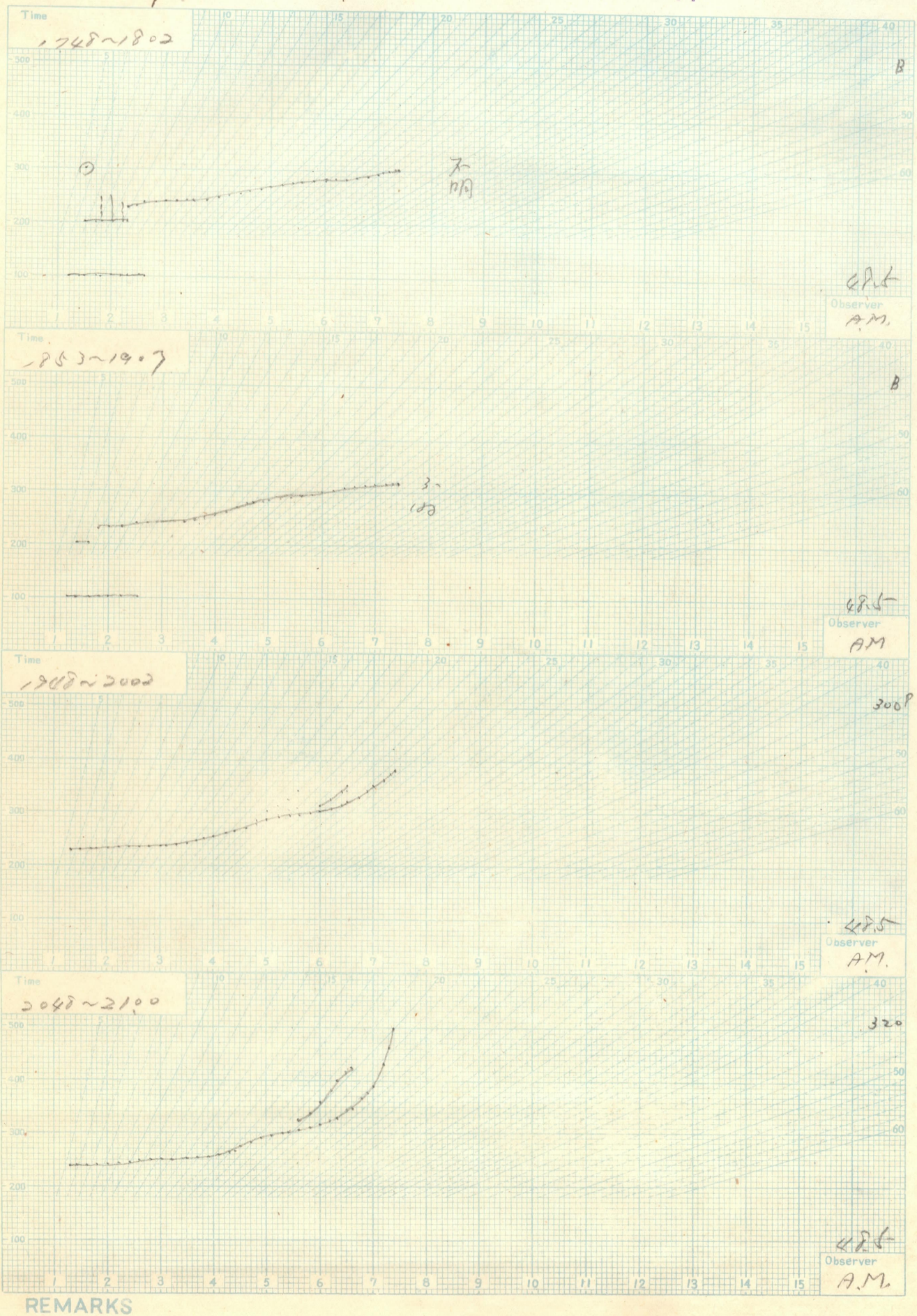
$f°F_2$	(11.8) J P	11.3	10.1	13
$h'F_2$	290	220	200	200
$f°F_1$	0 L	0	0	0
$h'F_1$	0 210	0	0	0
$f°E$	3.5	(3.0)	2.6	1.9
$h'E$	100	A	100	A
fE_s	B	3.1	$< f_E$	1.9
fF_{min}	3.9	3.1	2.6	1.9
fE_{min}	1.5	1.4	1.5	1.2
3000 MUF	38	35.5	35.0	
M_{3000}	J	3.0	3.2	B

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 22 1949 STATION WAKKANAI NO 7308



$f°F_2$	B
$h'F_2$	280
$f°F_1$	⊖
$h'F_1$	⊖
$f°E$	A
$h'E$	A
fE_s	2.6
ff_{min}	A
fE_{min}	1.2
3000 MUF	
M_{3000}	B
$f°F_2$	B
$h'F_2$	230
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.5
ff_{min}	A
fE_{min}	1.8
3000 MUF	
M_{3000}	B
$f°F_2$	6.8 P
$h'F_2$	230
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	1.3
fE_{min}	E
3000 MUF	21.9
M_{3000}	3.2 P
$f°F_2$	6.8
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	1.3
fE_{min}	E
3000 MUF	20.0
M_{3000}	2.9

REMARKS

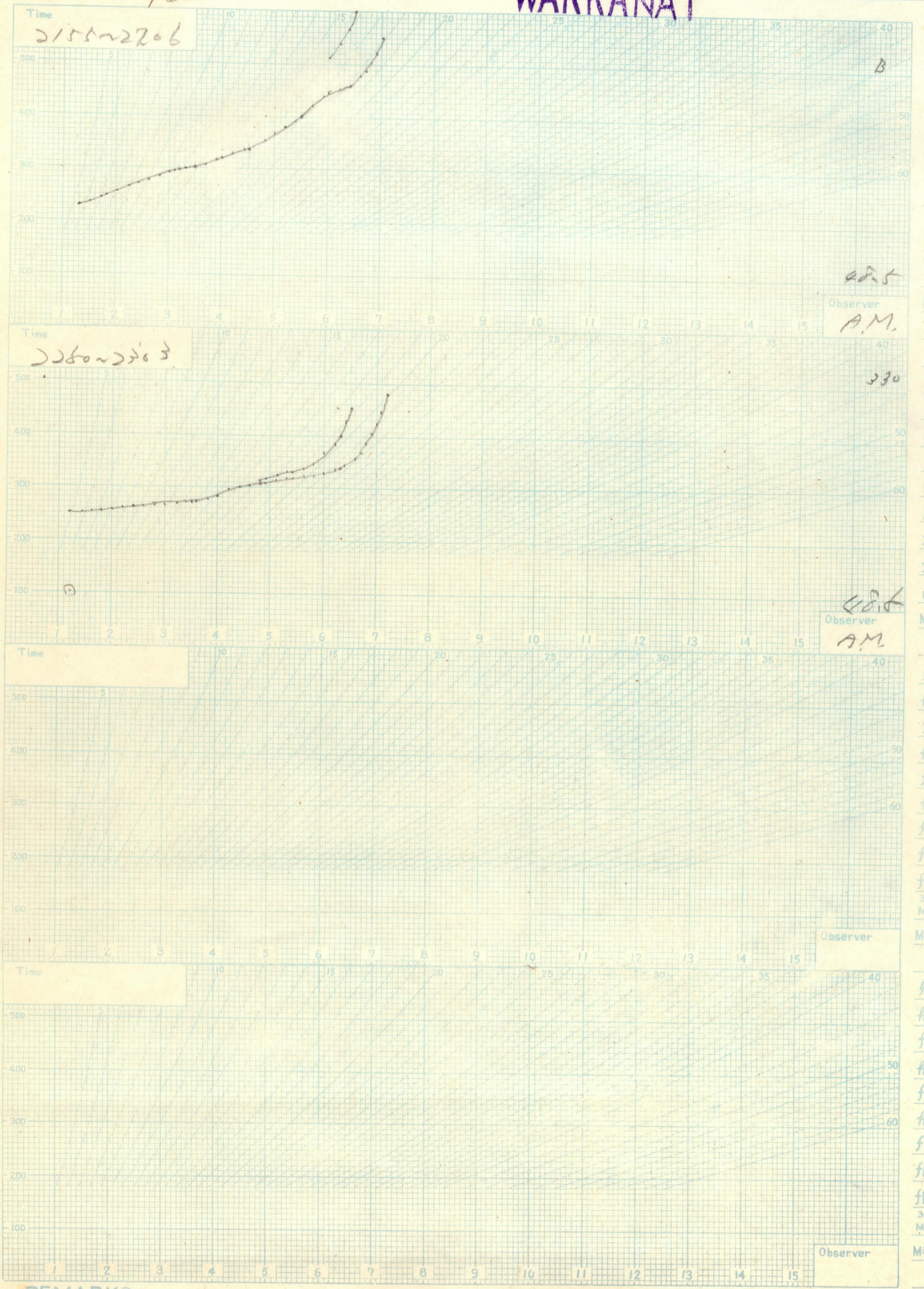
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 22 1949

STATION WAKKANAI

NO 7309



f^0F_2	6.6	6.6		
$h'F_2$	230	250		
f^0F_1				
$h'F_1$				
f^0E				
$h'E$				
fE_s	E	B		
ff_{min}	1.3	1.2		
fE_{min}	E	B		
3000 MUF	16.0	19.8		
M_{3000}	2.4	3.0		

REMARKS

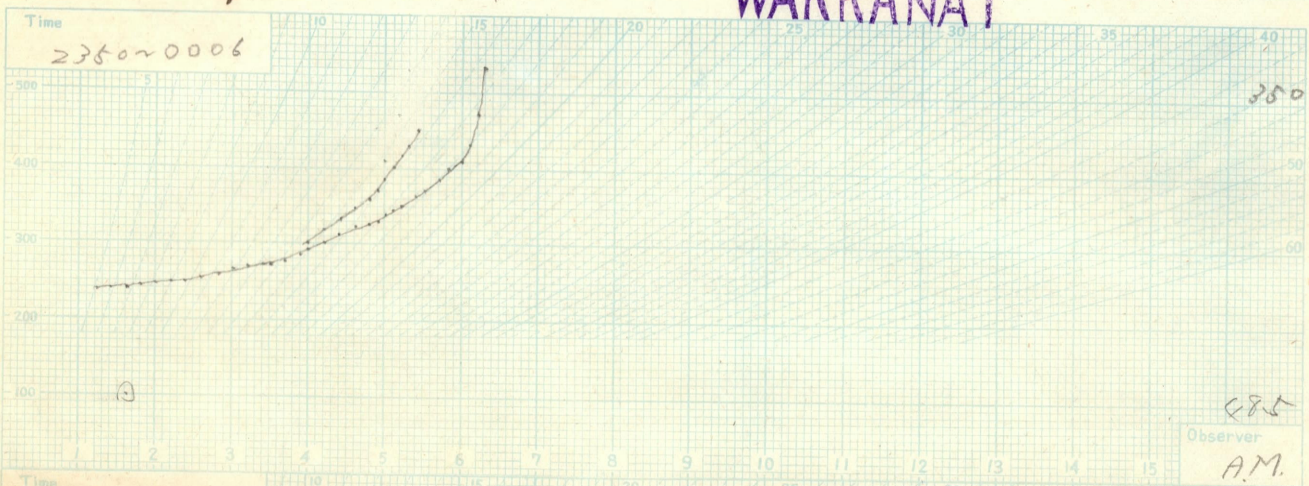
IONOSPHERIC RECORD

135°E MEAN TIME

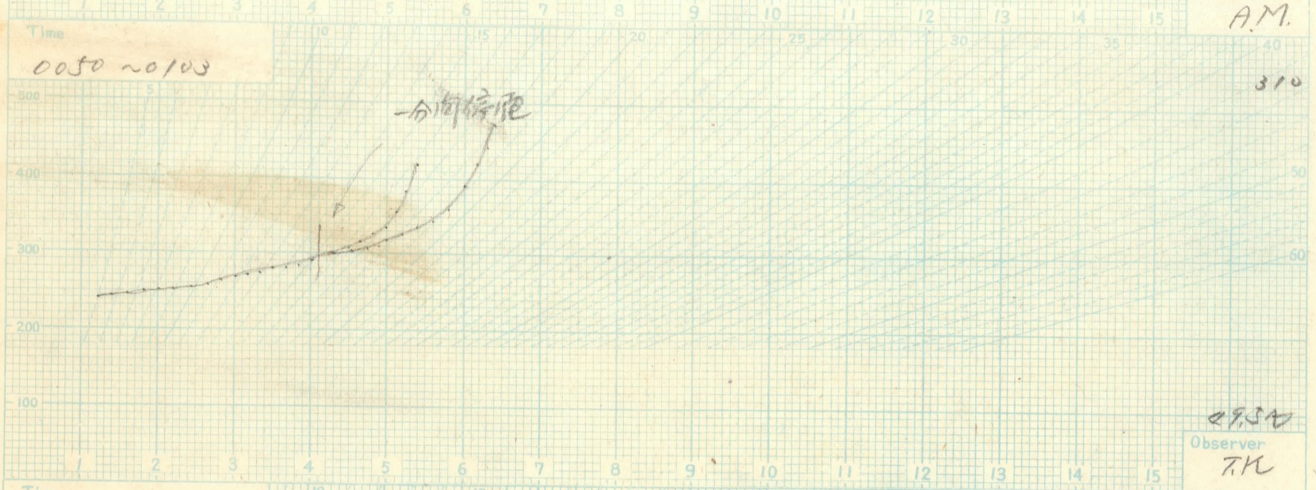
DATE FEB 23 1949

STATION WAKKANAI

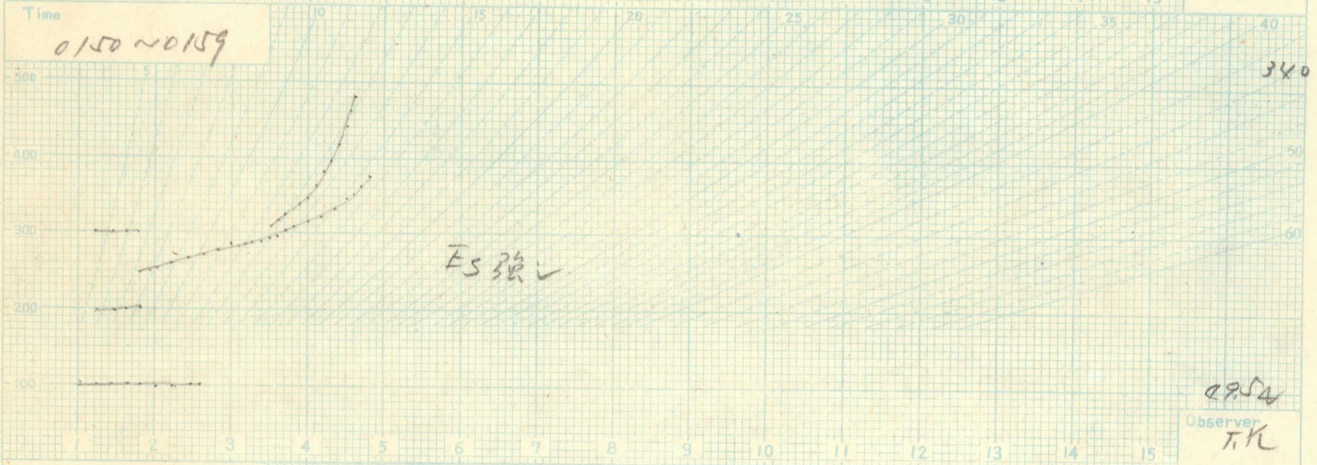
NO 7310



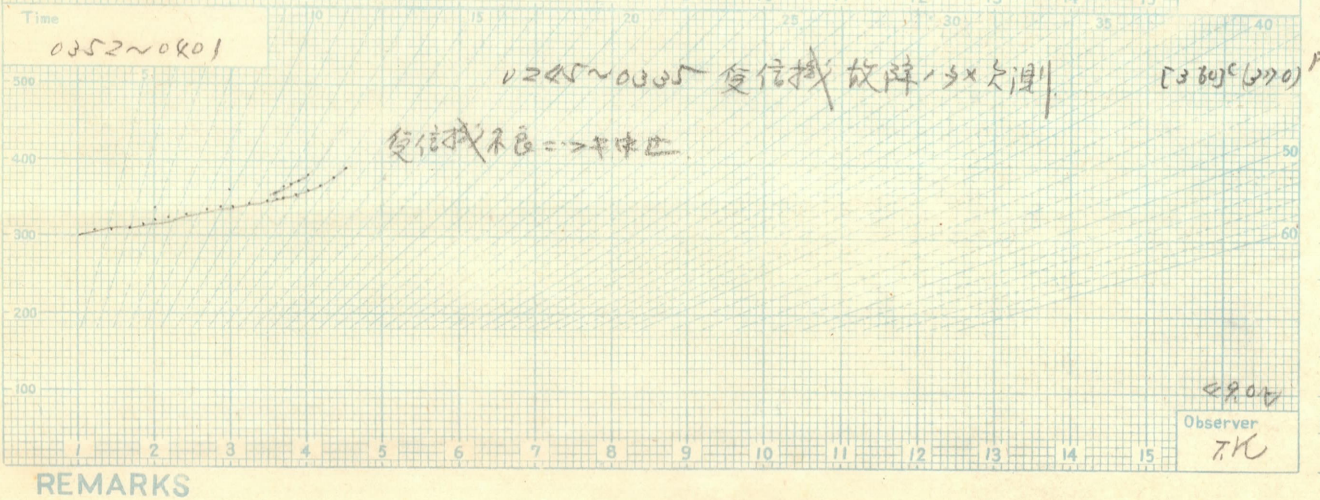
f^oF_2	5.6
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	B
fF_{min}	1.2
fE_{min}	B
3000 MUF	16.0
M_{3000}	2.8



f^oF_2	5.5
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	17.0 ~~18.0~~
M_{3000}	3.0 ~~3.2~~



f^oF_2	4.7
$h'F_2$	250 A
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	2.6
fF_{min}	A
fE_{min}	E
3000 MUF	13.5
M_{3000}	2.8



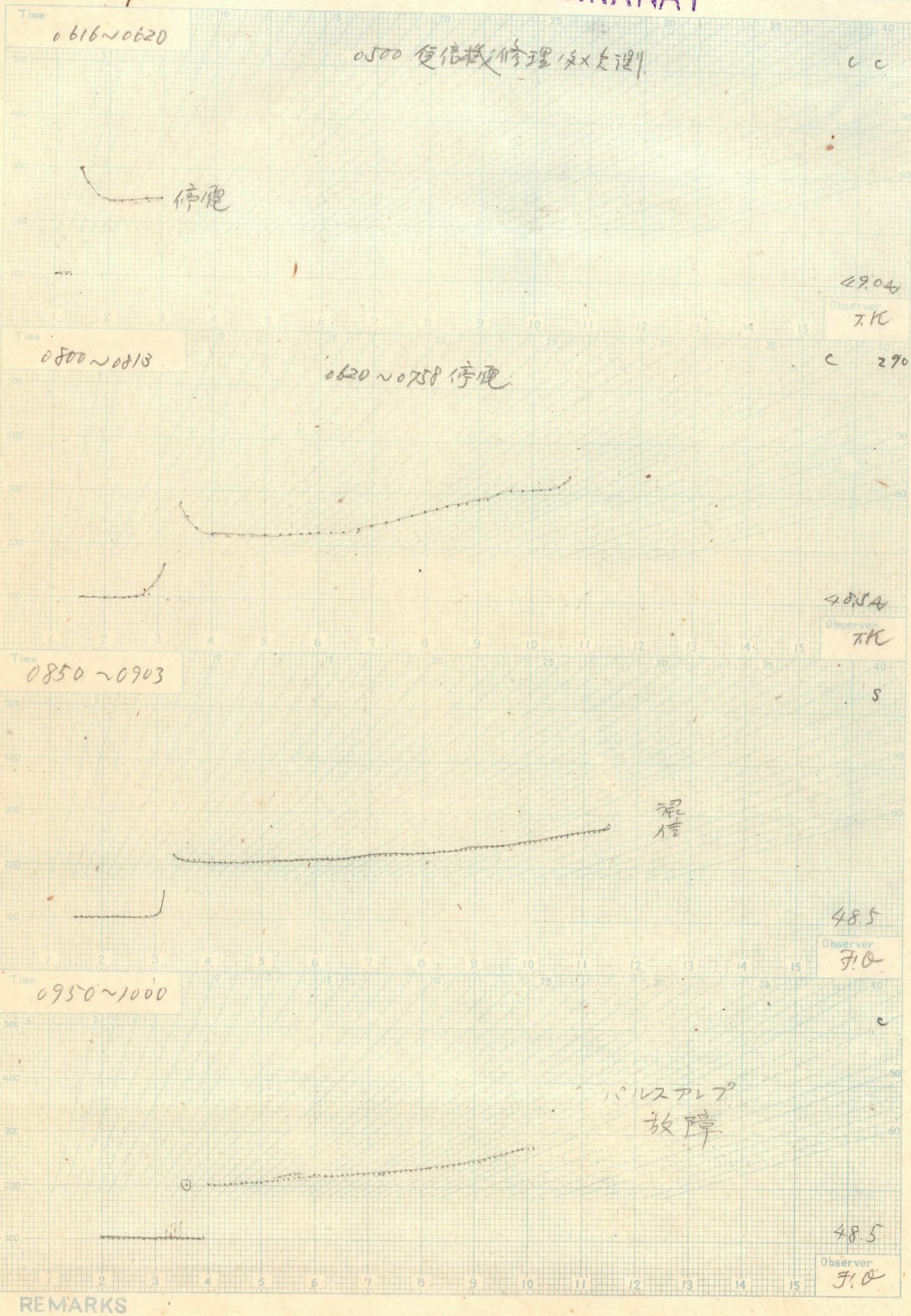
f^oF_2	[4.7]^c(4.6)^p
$h'F_2$	[280]^c 300
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	C E
fF_{min}	C E
fE_{min}	C E
3000 MUF	13.0
M_{3000}	[2.8]^c(2.8)^p

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 23 1949 STATION WAKKANAI NO 7311



	0500	0600
f^oF_2	C	C
$h'F_2$	[270]^c	240
f^oF_1	C	O
$h'F_1$		O
f^oE		(1.4)
$h'E$		A
fE_s	C	1.3
fF_{min}	C	1.5
fE_{min}	C	E
3000 MUF		
M_{3000}	C	C

	0700	0800
f^oF_2	C	10.9
$h'F_2$	[230]^c	220
f^oF_1	C	O
$h'F_1$	C	O
f^oE	[2.3]^c	3.2
$h'E$	C	100
fE_s	C	$<f_E$
fF_{min}	[2.4]^c	3.4
fE_{min}	[C]	1.5
3000 MUF		37.0
M_{3000}	C	3.3

f^oF_2	S
$h'F_2$	200
f^oF_1	O
$h'F_1$	O
f^oE	3.2
$h'E$	100
fE_s	$<f_E$
fF_{min}	3.3
fE_{min}	1.5
3000 MUF	
M_{3000}	S

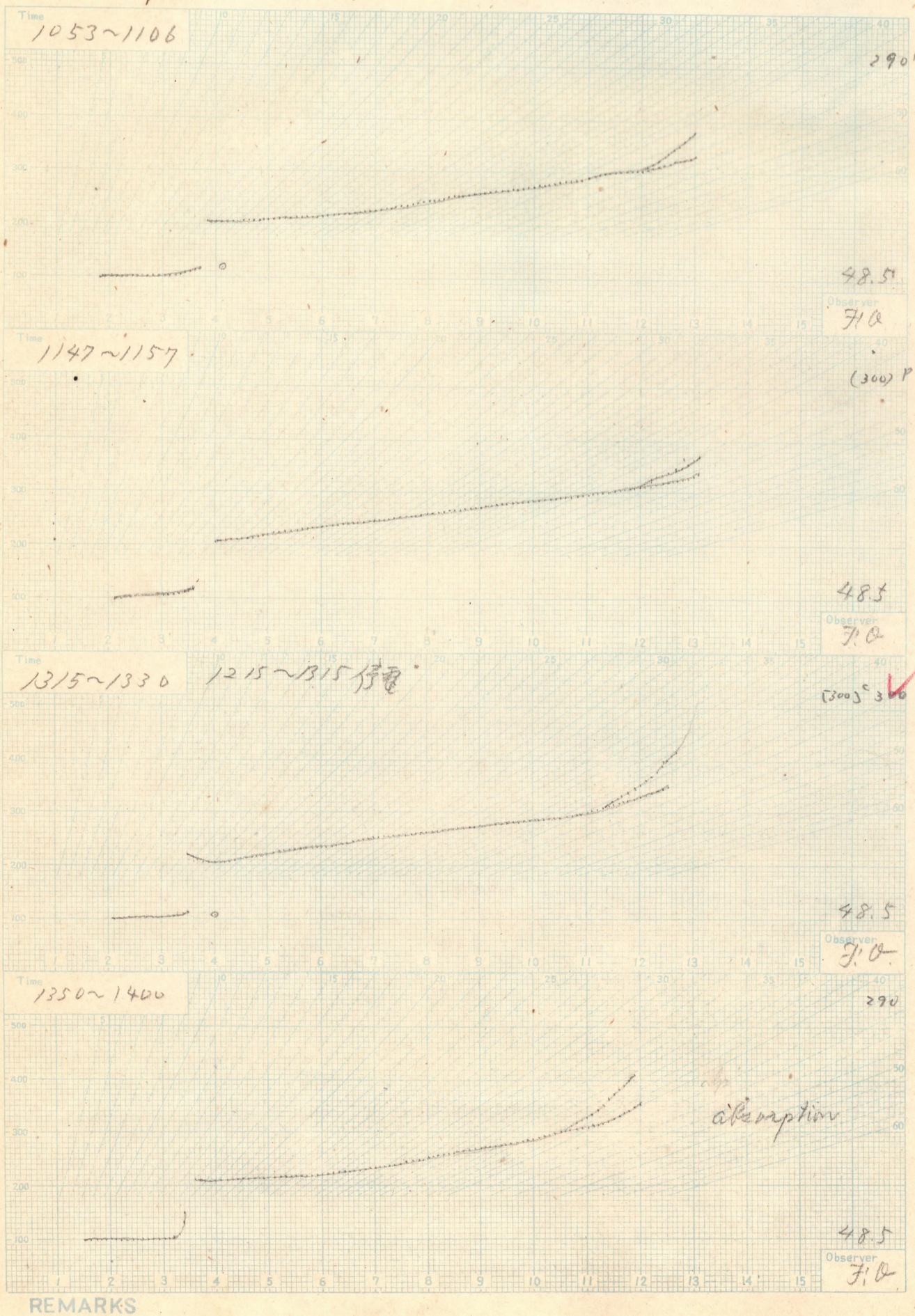
f^oF_2	C
$h'F_2$	220
f^oF_1	L
$h'F_1$	200
f^oE	A
$h'E$	A
fE_s	3.9
fF_{min}	A
fE_{min}	2.0
3000 MUF	
M_{3000}	C

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 23 1949 STATION WAKKANAI NO 7312



$f°F_2$	13.4 P	(13.8) P	[13.5] C (13.2) P	12.3
$h'F_2$	200	210	[210] C 210	210
$f°F_1$	0	0	C 0	0
$h'F_1$	0	0	C 0	0
$f°E$	A	(3.8) B	[3.6] C A	3.4
$h'E$	A	100	[100] C A	100
fE_s	(4.1)	B	C (4.0)	< f_E
fF_{min}	3.8	4.0	[3.8] C A	3.6
fE_{min}	1.8	2.1	[2.1] C 2.1	1.5
3000 MUF	43.5	42.8	41.0	38.0
M_{3000}	3.2 P	(3.1) P	[3.1] C (3.1) P	3.0

REMARKS

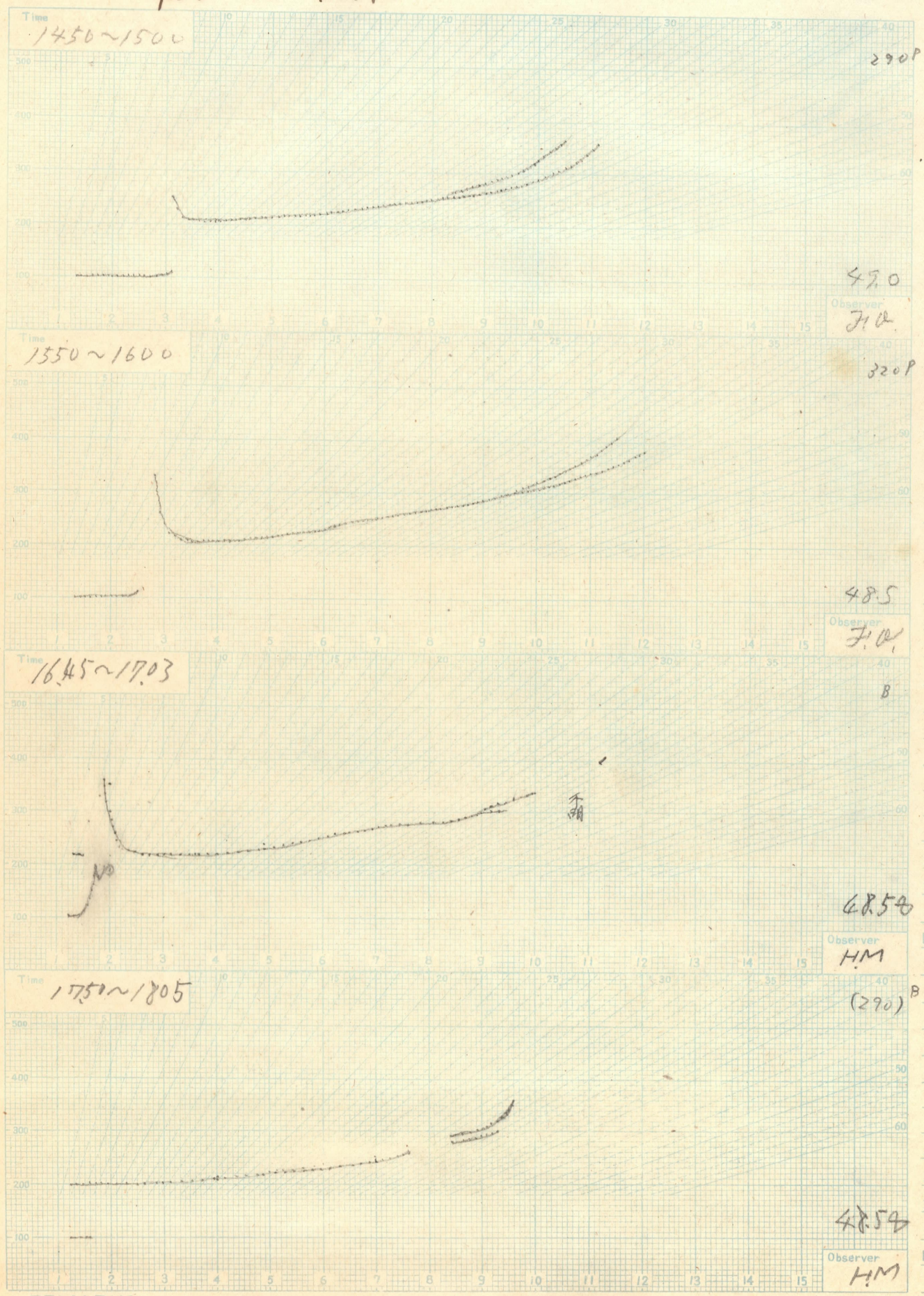
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 23 1949

STATION WAKKANAI

NO 7313



f^oF_2	11.0 P
$h'F_2$	210
f^oF_1	0
$h'F_1$	0
f^oE	3.1
$h'E$	100
fE_s	$<f_E$
fF_{min}	3.1
fE_{min}	1.3
3000 MUF	35.0
M_{3000}	3.1

f^oF_2	12.1 P
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	2.8
$h'E$	100
fE_s	$<f_E$
fF_{min}	2.8
fE_{min}	1.3
3000 MUF	35.9
M_{3000}	2.9 P

f^oF_2	B
$h'F_2$	220
f^oF_1	0
$h'F_1$	0
f^oE	1.7
$h'E$	100
fE_s	$<f_E$
fF_{min}	1.9
fE_{min}	1.2
3000 MUF	
M_{3000}	B

f^oF_2	9.7
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	E
$h'E$	E
fE_s	1.6
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	33.0
M_{3000}	3.4

REMARKS

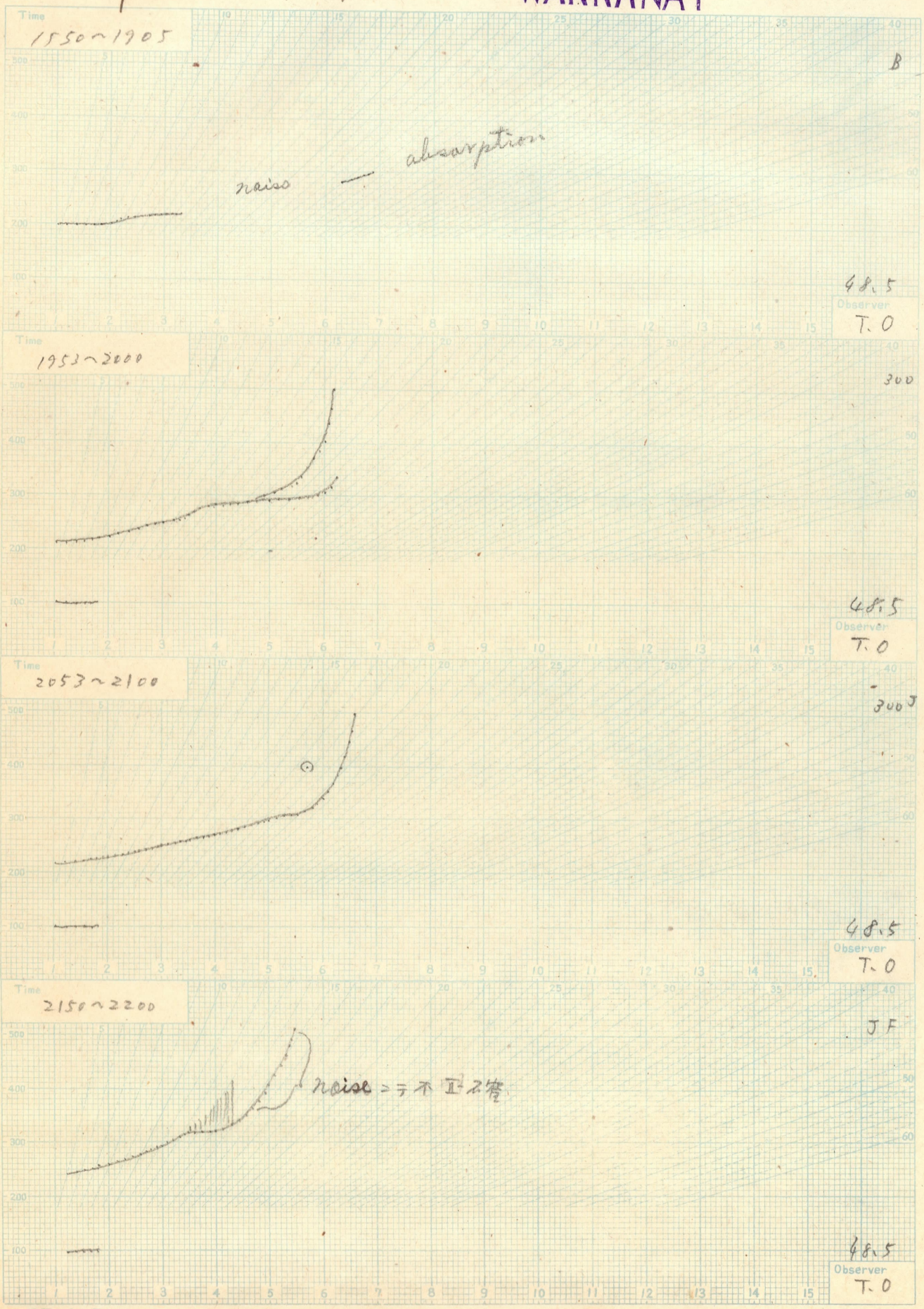
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 23 1949

STATION WAKKANAI

NO 7314



f^oF_2	B
$h'F_2$	200
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	
M_{3000}	B

f^oF_2	6.2
$h'F_2$	210
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.8
fF_{min}	E
fE_{min}	E
3000 MUF	19.0
M_{3000}	3.0

f^oF_2	5.9 J
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.8
fF_{min}	E
fE_{min}	E
3000 MUF	
M_{3000}	J

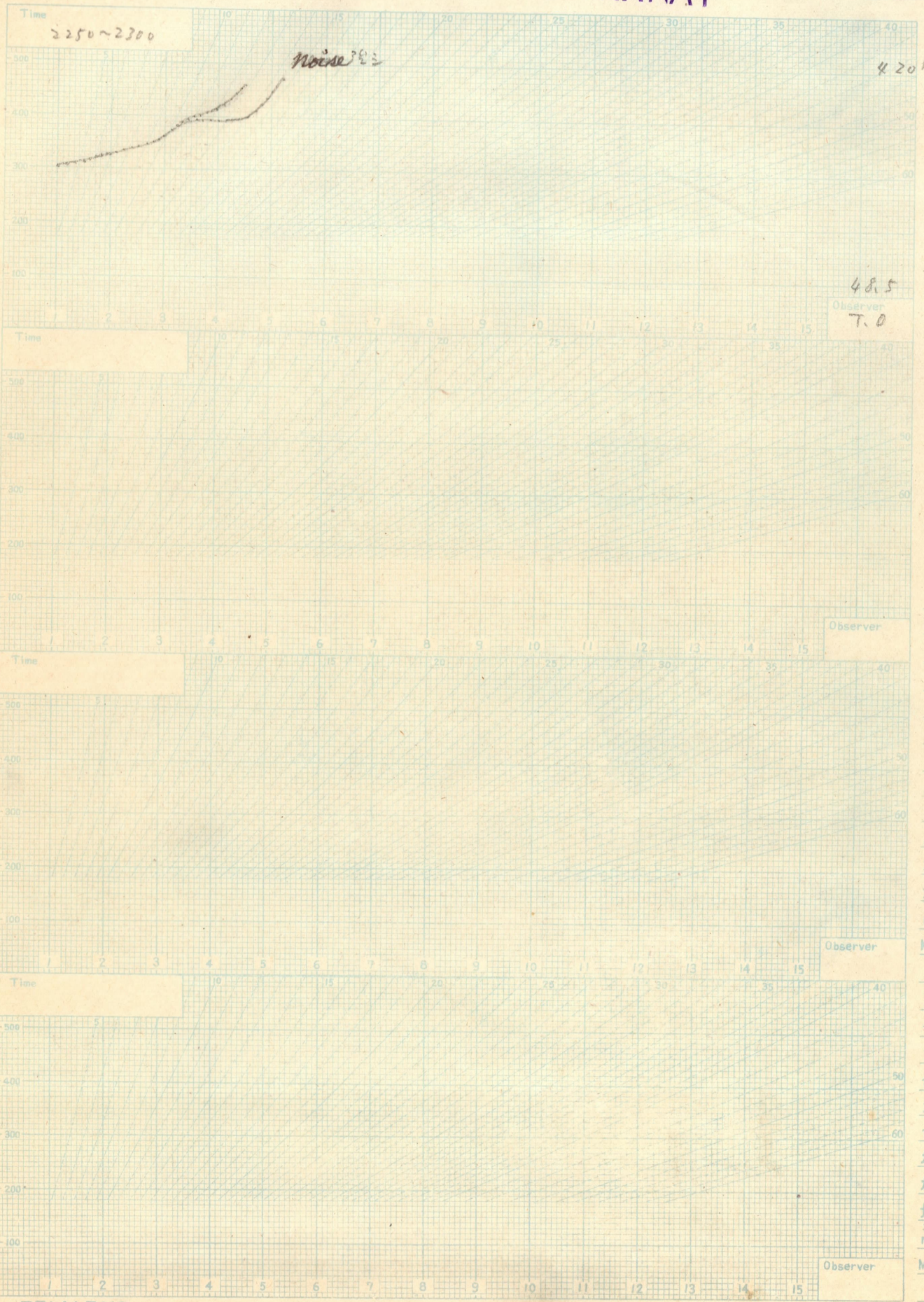
f^oF_2	(4.9) JF
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.8
fF_{min}	1.2
fE_{min}	1.2
3000 MUF	
M_{3000}	JF

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 23 1949 STATION WAKKANAI NO 7315



$f°F_2$	4.9 P
$h'F_2$	300
	4.20 P
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ffF_{min}	E
fE_{min}	E
3000 MUF	12.9
M_{3000}	2.6 P
	48.5

REMARKS

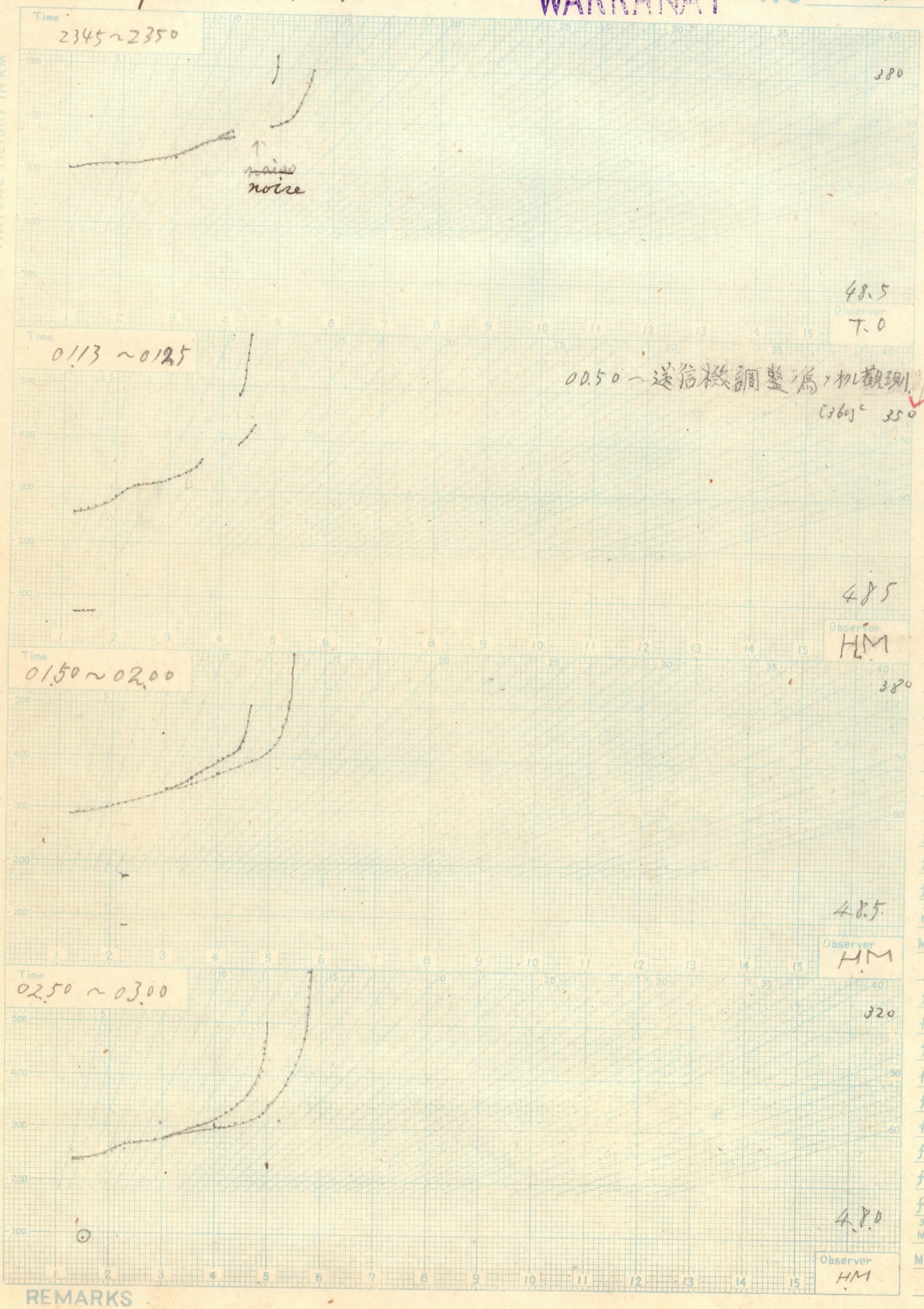
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 24 1949

STATION WAKKANAI

NO 7316



f^oF_2	4.9
$h'F_2$	300
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	13.5
M_{3000}	2.7
f^oF_2	[4.7]c 4.5
$h'F_2$	[280]c 260
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	C 1.6
fF_{min}	C 1.2
fE_{min}	C 1.2
3000 MUF	12.0
M_{3000}	[2.6]c 2.6
f^oF_2	4.6
$h'F_2$	290
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	(2.3)
fF_{min}	1.2
fE_{min}	(2.2)
3000 MUF	13.2
M_{3000}	2.8
f^oF_2	5.0
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	B
fF_{min}	1.3
fE_{min}	B
3000 MUF	15.1
M_{3000}	3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 24 1949

STATION WAKKANAI

NO 7317

VIRTUAL HEIGHT IN KM

Time 0350~0405



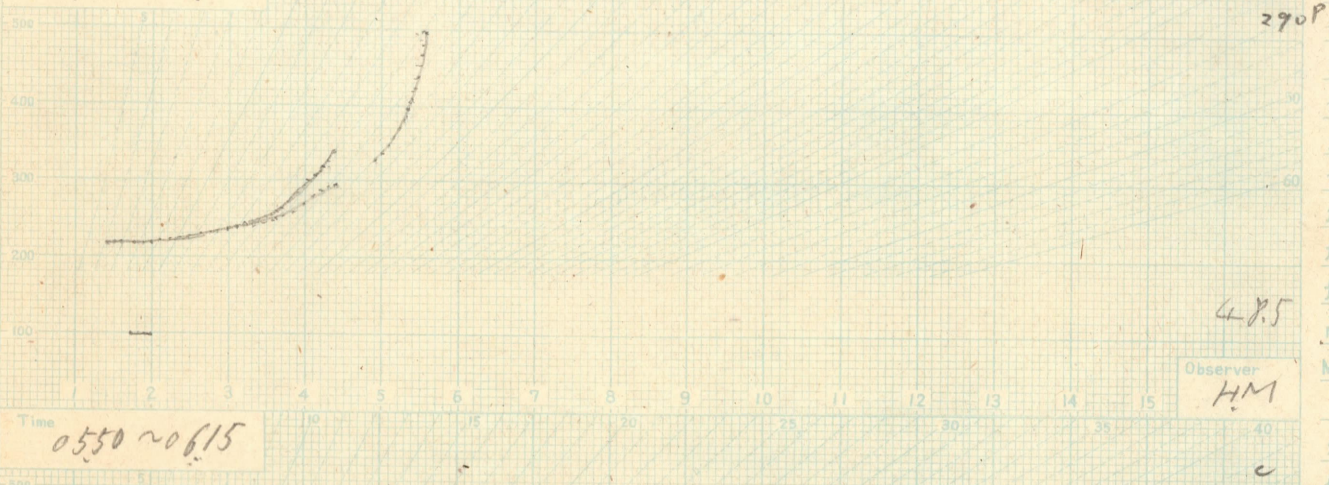
280

485

Observer HM

$f°F_2$	4.7
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	15.5
M_{3000}	3.3

Time 0450~0500



290P

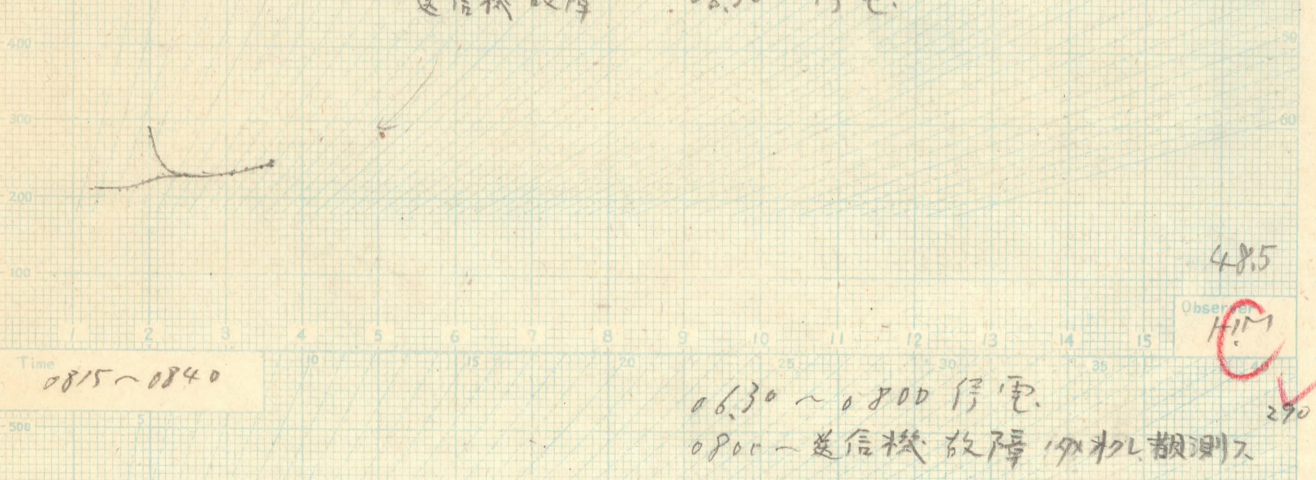
485

Observer HM

$f°F_2$	4.1 P
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	2.0
ff_{min}	1.4
fE_{min}	1.7
3000 MUF	15.0
M_{3000}	3.1 P

0600

Time 0550~0615



C

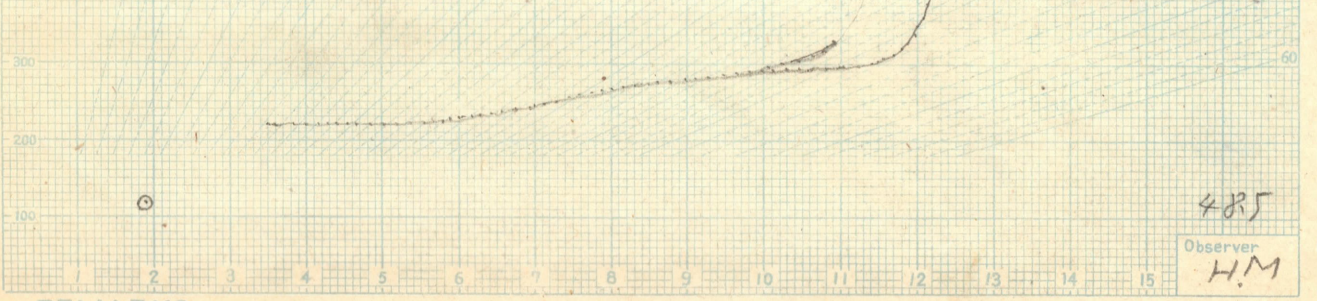
送信機故障 0630~停電

485

Observer HM

$f°F_2$	C
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	E
ff_{min}	1.2
fE_{min}	E
3000 MUF	
M_{3000}	C

Time 0815~0840



0630~0800 停電

0800~送信機故障のため観測ス

290

485

Observer HM

$f°F_2$	4.4 P
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	B
$h'E$	B
fE_s	B
ff_{min}	3.5
fE_{min}	B
3000 MUF	38.0 P
M_{3000}	3.3

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 24 1949

STATION WAKKANAI

NO 7318

VIRTUAL HEIGHT IN KM

Time 0852~0910

C

48.5

Observer AM

$f°F_2$	C
$h'F_2$	200
$f°F_1$	∅
$h'F_1$	∅
$f°E$	B
$h'E$	(100)
fE_s	B
ff_{min}	4.0
fE_{min}	1.6
3000 MUF	
M_{3000}	C

Time 0950~1000

1000 雲1/2 7 11時 雲

~1100 雲1/2 7

C

48.5

Observer AM

$f°F_2$	C
$h'F_2$	220
$f°F_1$	∅
$h'F_1$	∅
$f°E$	B
$h'E$	B
fE_s	B
ff_{min}	3.0
fE_{min}	(2.2)
3000 MUF	
M_{3000}	C

Time 1150~1200

C (290)

48.5

Observer AM

1100 1200

$f°F_2$	C 12.5
$h'F_2$	[220]^C 210
$f°F_1$	C ∅
$h'F_1$	C ∅
$f°E$	C 3.5
$h'E$	C 100
fE_s	C $<f_E$
ff_{min}	[3.3]^C 3.5
fE_{min}	[1.9]^C 1.6
3000 MUF	42.0
M_{3000}	C 3.3

Time 1319~1335

[300]^C 300

48.5

Observer A.M.

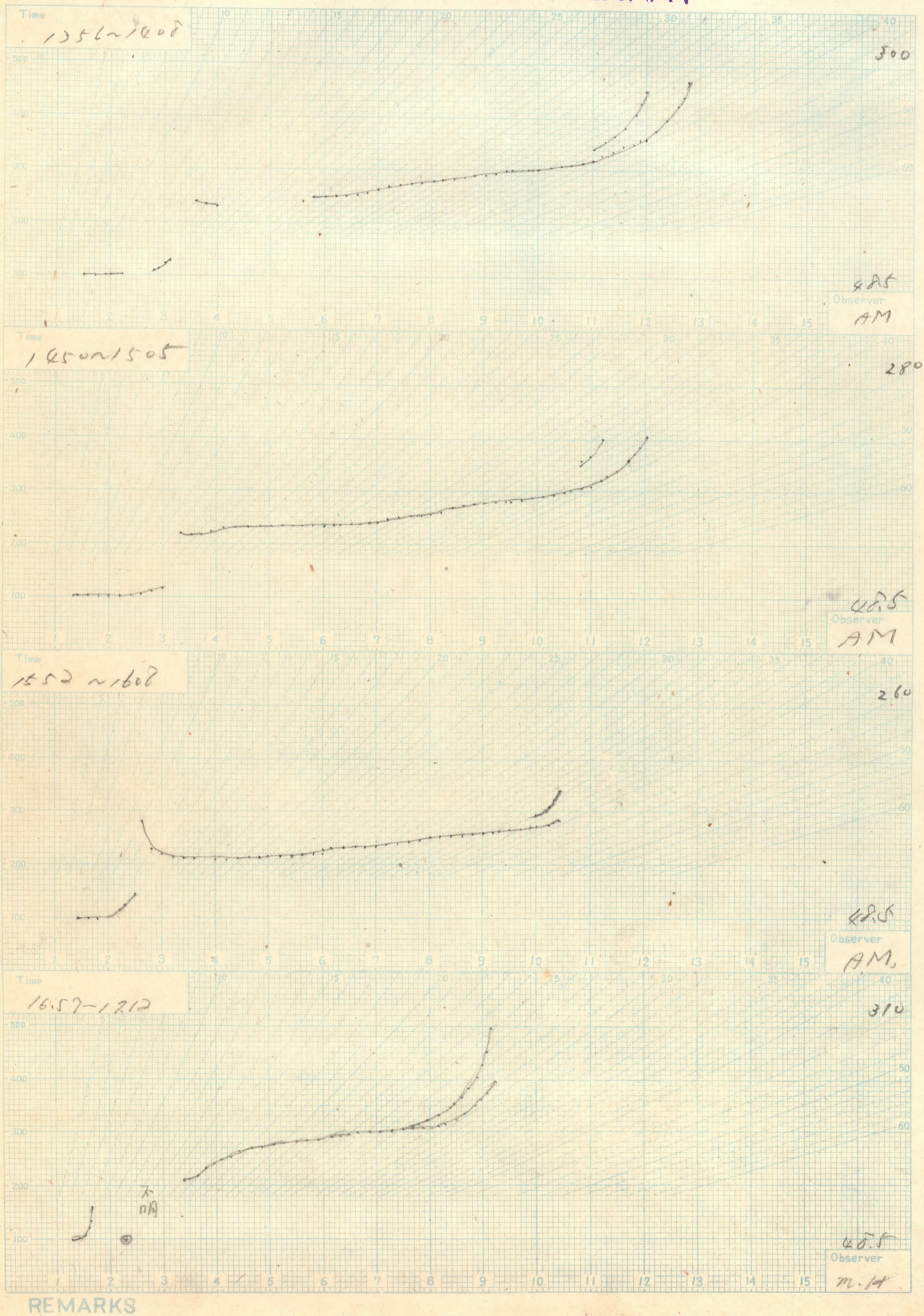
$f°F_2$	[12.3]^C 12
$h'F_2$	[280]^C 280
$f°F_1$	C L
$h'F_1$	C 220
$f°E$	[3.5]^C 3.5
$h'E$	Douf 100
fE_s	C $<f_E$
ff_{min}	[3.5]^C 3.5
fE_{min}	[1.5]^C 1.4
3000 MUF	37.0
M_{3000}	[3.1]^C 3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 24 1949 STATION WAKKANAI NO 7319



$f°F_2$	12.1	11.4	10.6	9.2
$h'F_2$	220	220	210	210
$f°F_1$	Q	Q	Q	Q
$h'F_1$	Q	Q	Q	Q
$f°E$	(3.3)B	B	2.6	1.7
$h'E$	100	100	100	100
fE_s	B	B	<fE	B
fF_{min}	3.6	3.3	2.6	3.4
fE_{min}	1.5	1.3	1.4	1.3
3000 MUF	37.5	36.0	37.0	28.2
M_{3000}	3.1	3.1	3.4	3.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

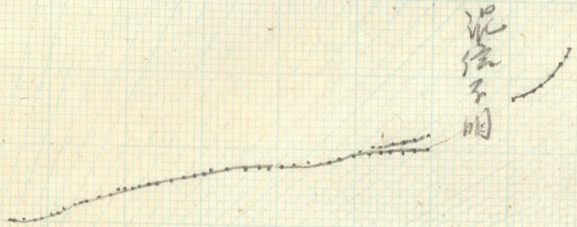
DATE FEB 24 1949

STATION WAKKANAI

NO 7320

VIRTUAL HEIGHT IN KM

Time 17.53-18.05



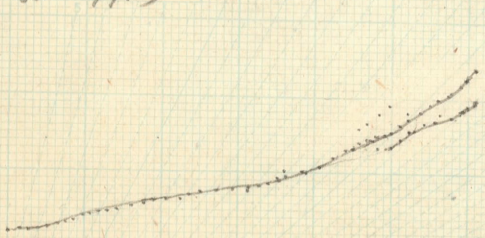
280 JS

48.5

Observer M.H

$f°F_2$	6.2 JS
$h'F_2$	200
$f°F_1$	—
$h'F_1$	—
$f°E$	B
$h'E$	B
fE_s	B
fF_{min}	1.5
fE_{min}	B
3000 MUF	
M_{3000}	JS

Time 18.52-19.03



19.53-20.10 停電

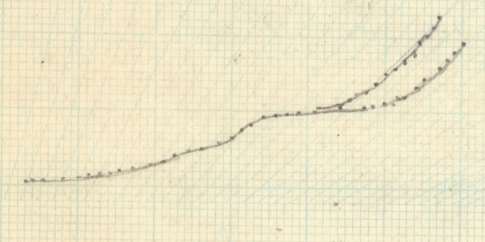
370 P

48.5

Observer M.H

$f°F_2$	7.4 P
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	20.9
M_{3000}	2.8 P

Time 20.10-20.20



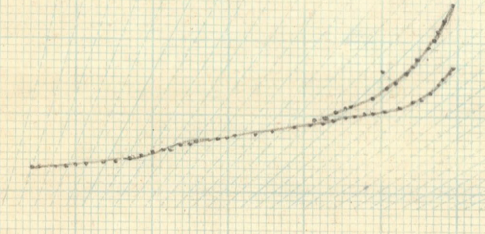
320

48.5

Observer M.H

$f°F_2$	6.9
$h'F_2$	200
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	20.2
M_{3000}	2.9

Time 20.54-21.00



320

48.5

Observer M.H

$f°F_2$	7.0
$h'F_2$	230
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.4
fE_{min}	E
3000 MUF	21.0
M_{3000}	3.0

REMARKS

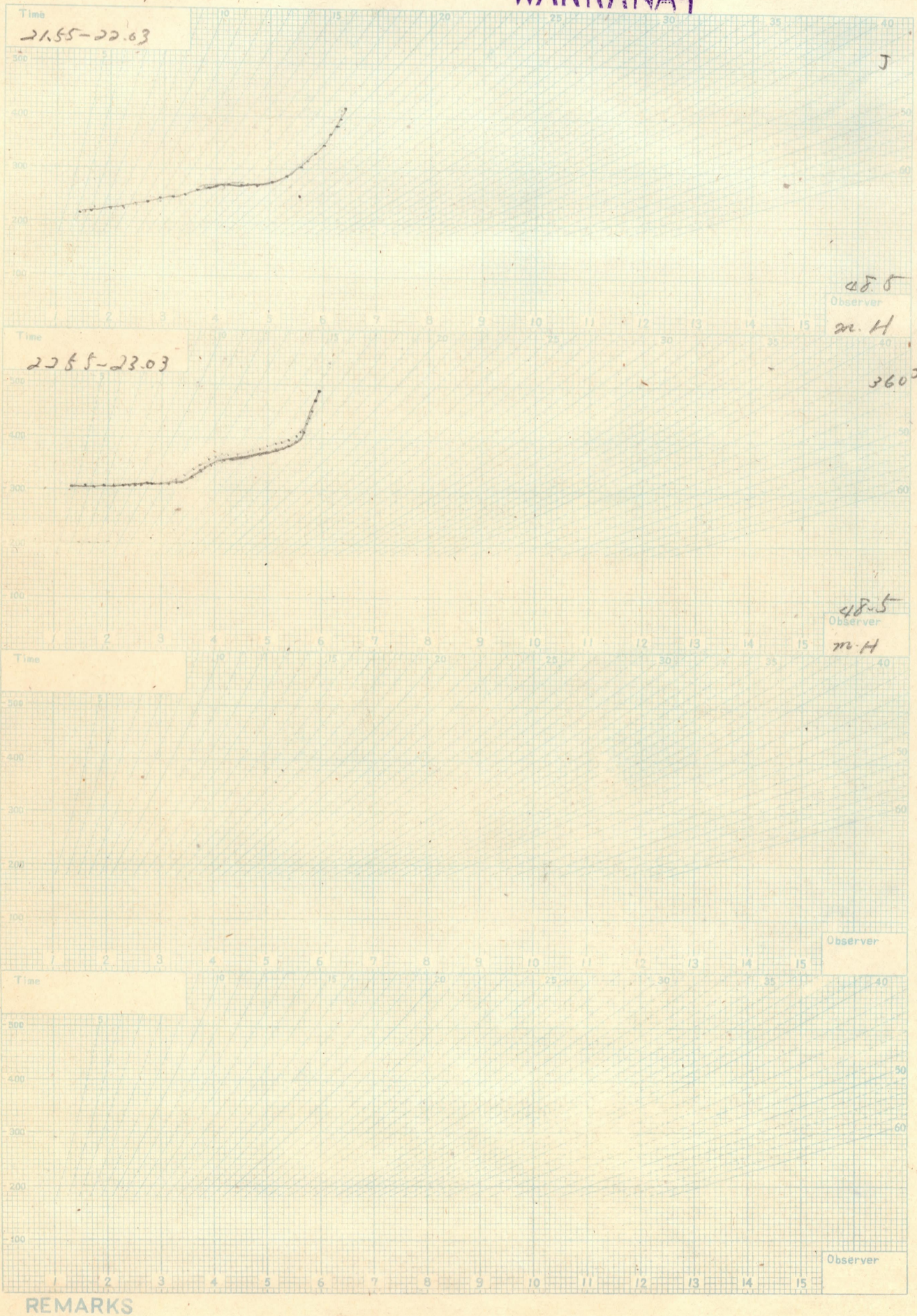
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB. 24 1949

STATION WAKKANAI

NO 7321



f^oF_2	5.9J
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.4
fE_{min}	E
3000 MUF	
M_{3000}	J

f^oF_2	5.3J
$h'F_2$	300
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	
M_{3000}	J

f^oF_2	
$h'F_2$	
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

f^oF_2	
$h'F_2$	
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

REMARKS

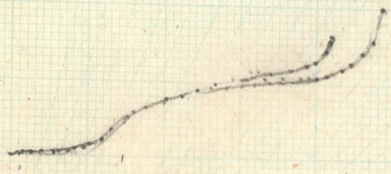
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 25 1949 STATION WAKKANAI NO 7322

VIRTUAL HEIGHT IN KM

Time 2352-2358



410

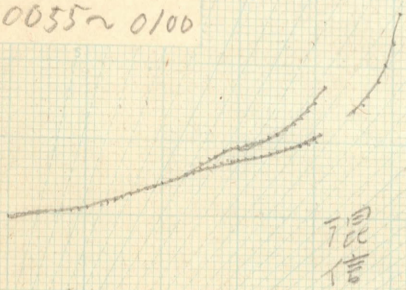
49.0

Observer M.H.

f^0F_2 5.2
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 14.7
M_{3000} 2.8

VIRTUAL HEIGHT IN KM

Time 0055~0100



410

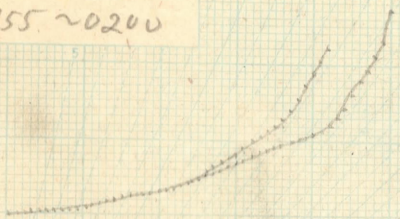
49.0

Observer F.O.

f^0F_2 5.3
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 14.3
M_{3000} 2.7

VIRTUAL HEIGHT IN KM

Time 0155~0200



410

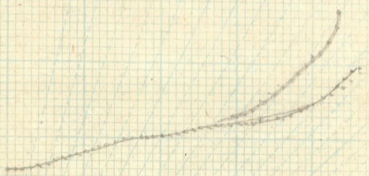
49.0

Observer F.O.

f^0F_2 5.3
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 13.9
M_{3000} 2.6

VIRTUAL HEIGHT IN KM

Time 0255~0302



360

495

Observer F.O.

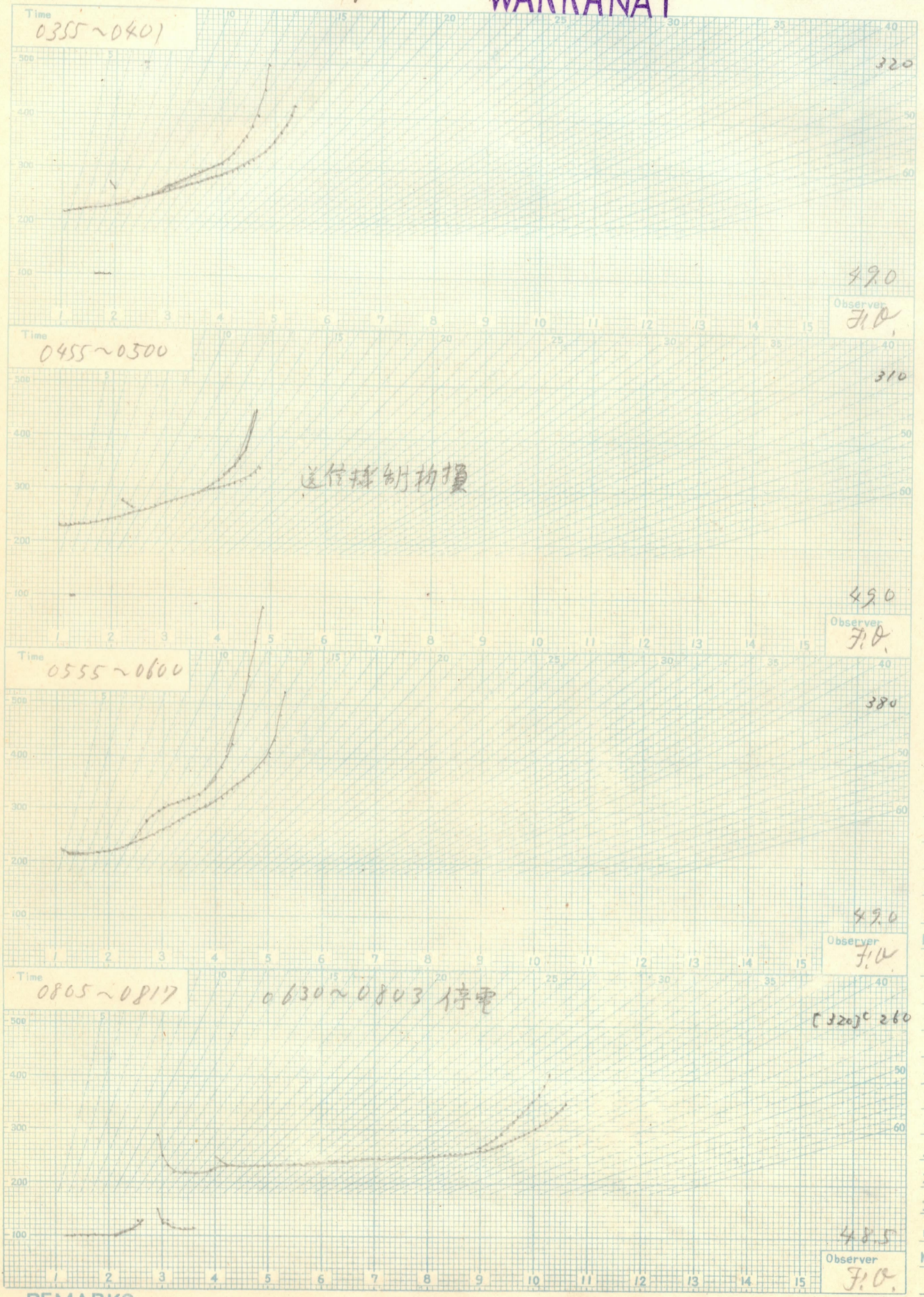
f^0F_2 5.3
$h'F_2$ 260
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 1.5
ff_{min} E
fE_{min} 1.2
3000 MUF 15.4
M_{3000} 2.9

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE Feb 25 1949 STATION WAKKANAI NO 7323



$f°F_2$	4.9	4.7	4.9
$h'F_2$	220	230	210
$f°F_1$			0
$h'F_1$			0
$f°E$			E
$h'E$			E
fE_S	1.9	(1.3)	E
fF_{min}	E	E	1.1
fE_{min}	1.6	(1.2)	E
3000 MUF	14.8	14.5	13.0
M_{3000}	3.0	3.0	2.6

$f°F_2$	[9.7]c 10.5
$h'F_2$	[220]f 220
$f°F_1$	c 0
$h'F_1$	c 0
$f°E$	c 2.8
$h'E$	c 100
fE_S	c 3.6
fF_{min}	[2.0]c 2.9
fE_{min}	c 1.2
3000 MUF	35.0
M_{3000}	[2.9]c 3.3

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

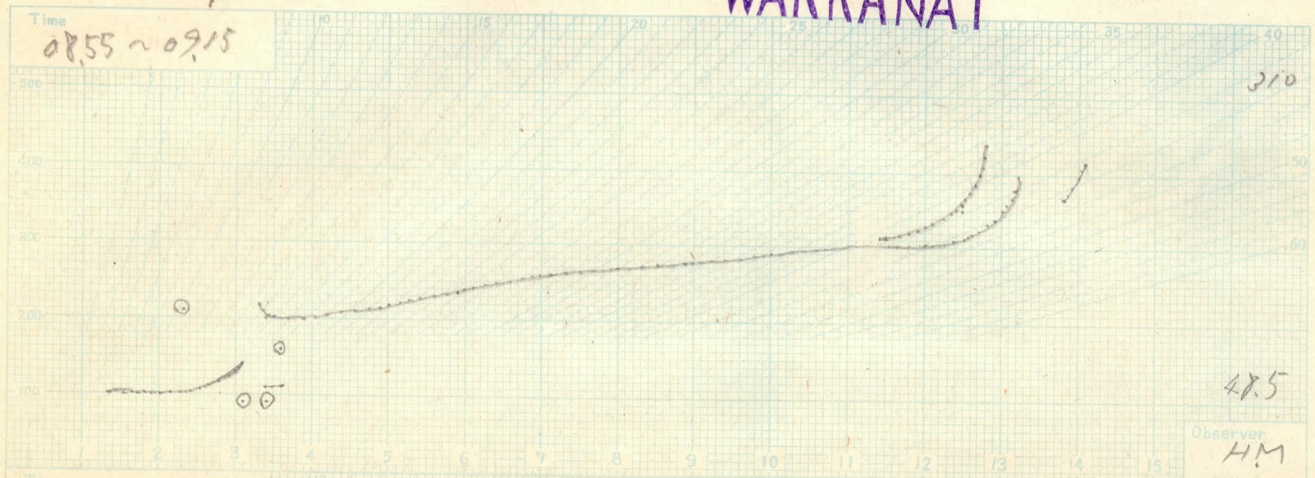
DATE FEB 25 1949

STATION WAKKANAI

NO 7324

VIRTUAL HEIGHT IN KM

Time 08.55 ~ 09.15



$f°F_2$	12.8
$h'F_2$	200
$f°F_1$	0
$h'F_1$	0
$f°E$	3.2
$h'E$	100
fE_s	3.6
ff_{min}	3.3
fE_{min}	1.3
3000 MUF	41.9
M_{3000}	3.2

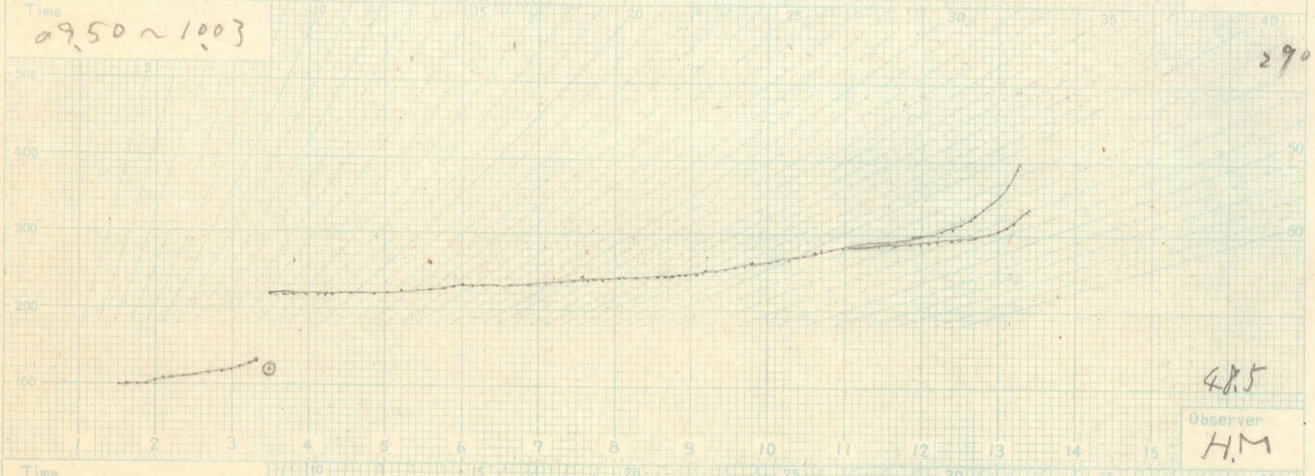
310

48.5

Observer H.M

VIRTUAL HEIGHT IN KM

Time 09.50 ~ 10.03



$f°F_2$	13.4
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	A
$h'E$	A
fE_s	3.3
ff_{min}	A
fE_{min}	1.5
3000 MUF	44.3
M_{3000}	3.3

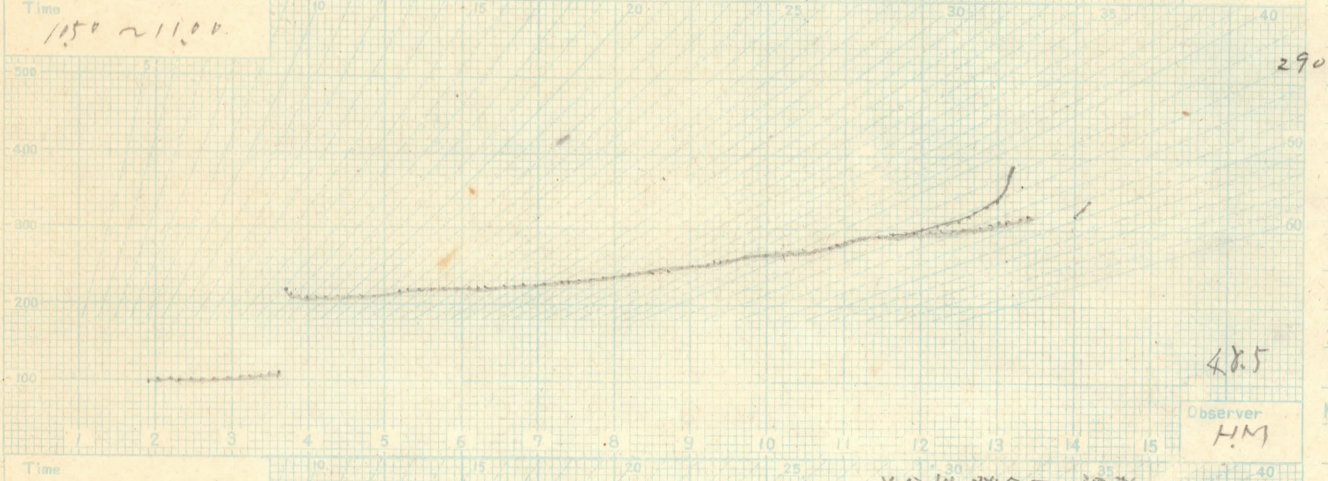
290

48.5

Observer H.M

VIRTUAL HEIGHT IN KM

Time 11.50 ~ 11.00



$f°F_2$	13.3
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	A
$h'E$	A
fE_s	3.6
ff_{min}	A
fE_{min}	1.9
3000 MUF	44.2
M_{3000}	3.3

290

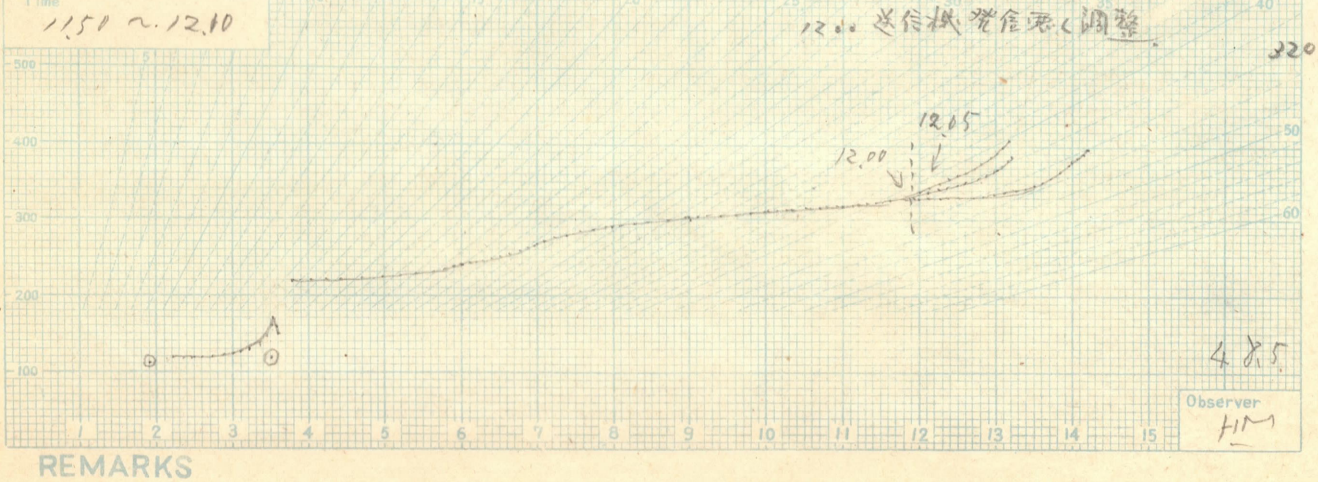
48.5

Observer H.M

VIRTUAL HEIGHT IN KM

Time 11.50 ~ 12.10

12.00 送信機発信悪く調整



$f°F_2$	13.5 P
$h'F_2$	220
$f°F_1$	0
$h'F_1$	0
$f°E$	3.5
$h'E$	120
fE_s	3.6
ff_{min}	3.8
fE_{min}	2.2
3000 MUF	41.0 P
M_{3000}	3.0

320P

48.5

Observer H.M

REMARKS

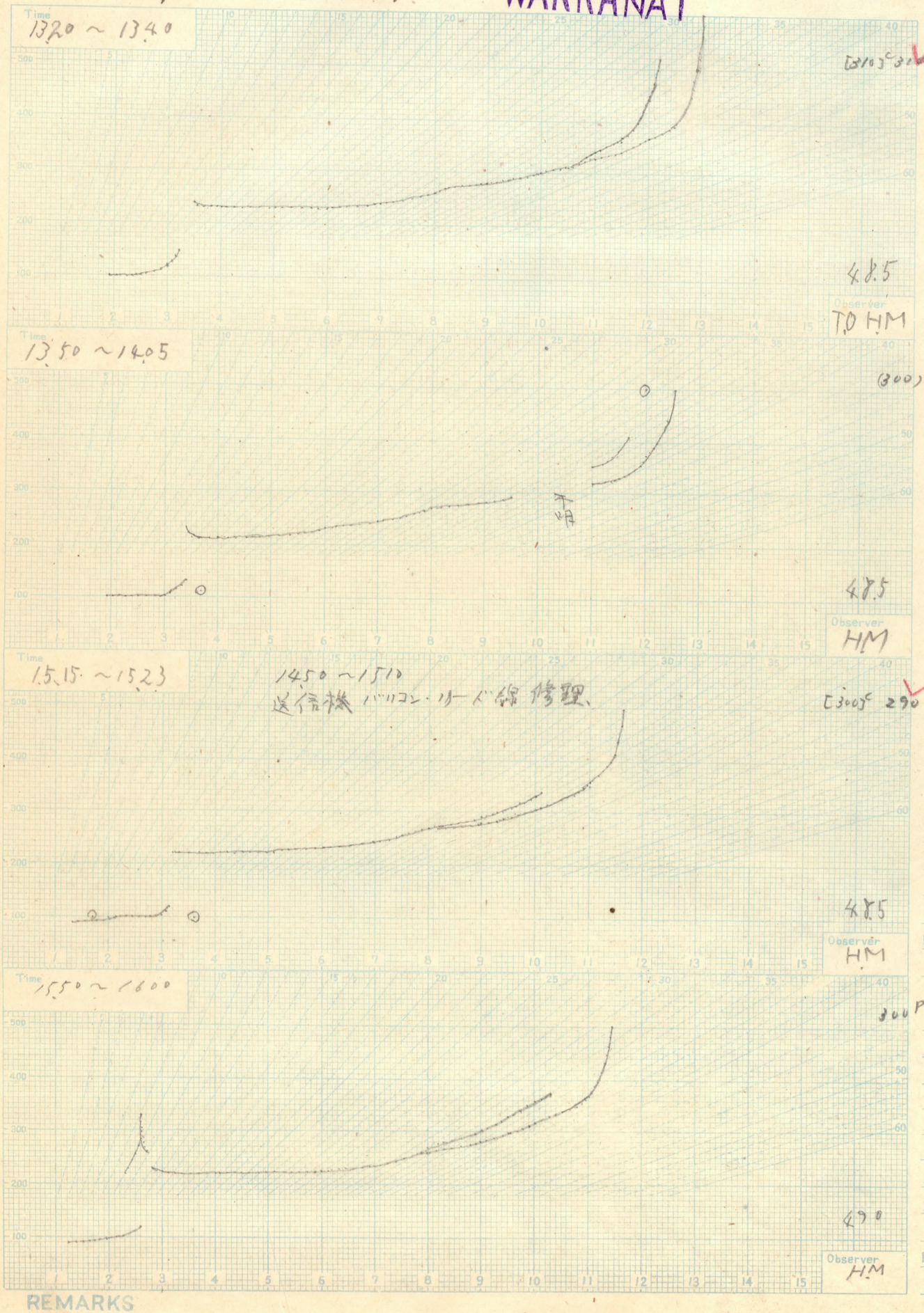
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 25 1949

STATION WAKKANAI

NO 7325



$f°F_2$	[12.7]^{c}2.3	[310]^{c}300	
$h'F_2$	[230]^{c}230		
$f°F_1$	c		
$h'F_1$	c		
$f°E$	[3.4]^{c}3.3		
$h'E$	[110]^{c}100		
fE_s	c		
fF_{min}	[3.6]^{c}3.5		
fE_{min}	[2.0]^{c}1.9		
3000 MUF	37.5		
M_{3000}	[3.0]^{c}3.0		
$f°F_2$	(12.0)^p	(300)^p	
$h'F_2$	210		
$f°F_1$			
$h'F_1$			
$f°E$	3.4		
$h'E$	100		
fE_s	(3.7)		
fF_{min}	3.4		
fE_{min}	1.9		
3000 MUF	37.0		
M_{3000}	(3.0)^p		
$f°F_2$	[11.3]^{c}11.3	[300]^{c}290	
$h'F_2$	[220]^{c}220		
$f°F_1$	c		
$h'F_1$	c		
$f°E$	[3.2]^{c}3.1		
$h'E$	[90]^{c}90		
fE_s	c	(3.6)	
fF_{min}	[3.3]^{c}3.2		
fE_{min}	[1.5]^{c}1.3		
3000 MUF			
M_{3000}	[3.0]^{c}J		
$f°F_2$	10.8^p	300^p	
$h'F_2$	220		
$f°F_1$			
$h'F_1$			
$f°E$	2.6		
$h'E$	90		
fE_s	<fE		
fF_{min}	2.6		
fE_{min}	1.2		
3000 MUF	33.0		
M_{3000}	3.0^p		

REMARKS

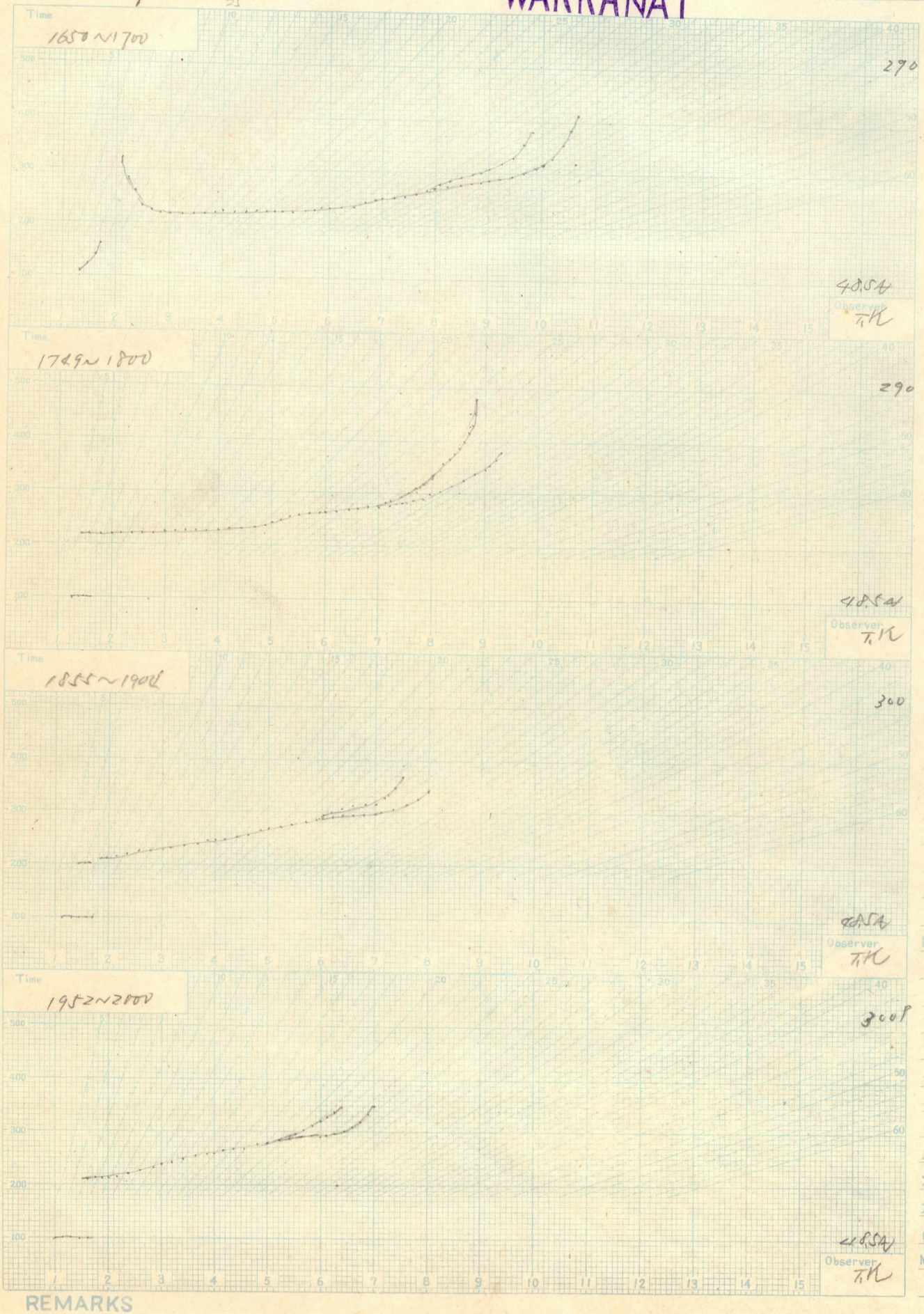
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 25 1949 (25)

STATION WAKKANAI

NO 7326



$f°F_2$	10.0	$f°F_2$	8.8	$f°F_2$	7.6	$f°F_2$	6.8 P
$h'F_2$	220	$h'F_2$	220	$h'F_2$	210	$h'F_2$	210
$f°F_1$	A	$f°F_1$	A	$f°F_1$		$f°F_1$	
$h'F_1$	A	$h'F_1$	A	$h'F_1$		$h'F_1$	
$f°E$	1.8	$f°E$	A	$f°E$		$f°E$	
$h'E$	110	$h'E$	A	$h'E$		$h'E$	
fE_s	B	fE_s	1.6	fE_s	1.7	fE_s	1.7
ff_{min}	2.1	ff_{min}	1.4	ff_{min}	A	ff_{min}	1.5
fE_{min}	1.3	fE_{min}	1.2	fE_{min}	1.1	fE_{min}	E
3000 MUF	32.6	3000 MUF	29.7	3000 MUF	25.0	3000 MUF	21.5
M_{3000}	3.2	M_{3000}	3.1	M_{3000}	3.2	M_{3000}	3.1 P

REMARKS

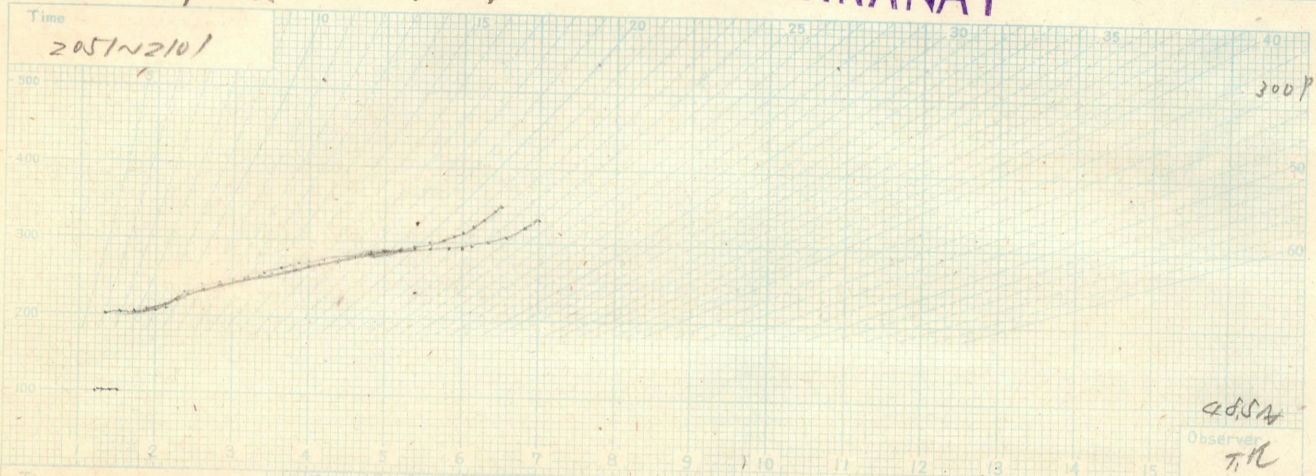
IONOSPHERIC RECORD

135°E MEAN TIME

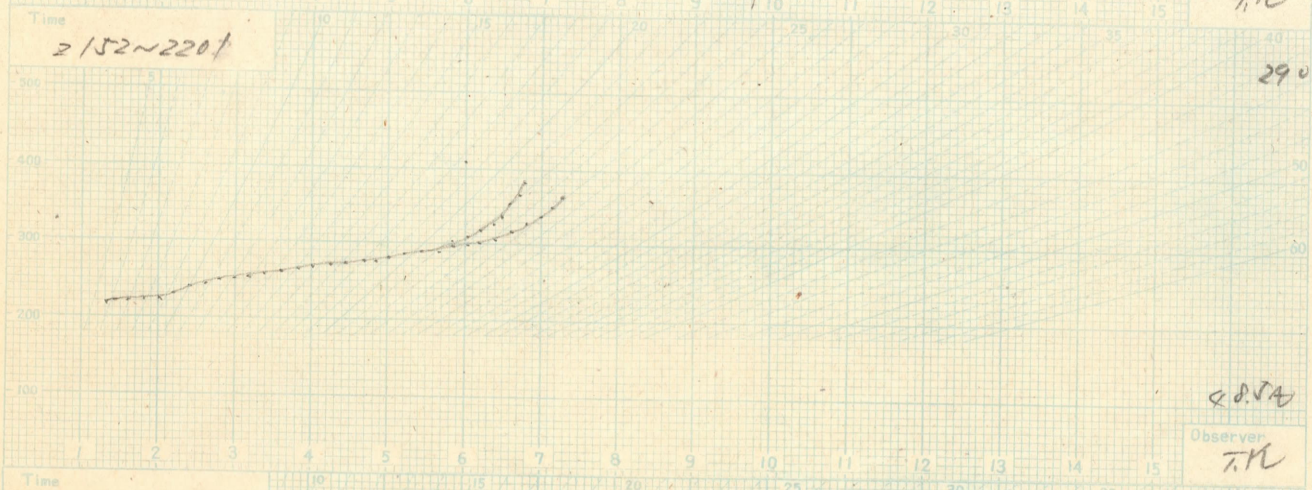
DATE FEB 25 1949

STATION WAKKANAI

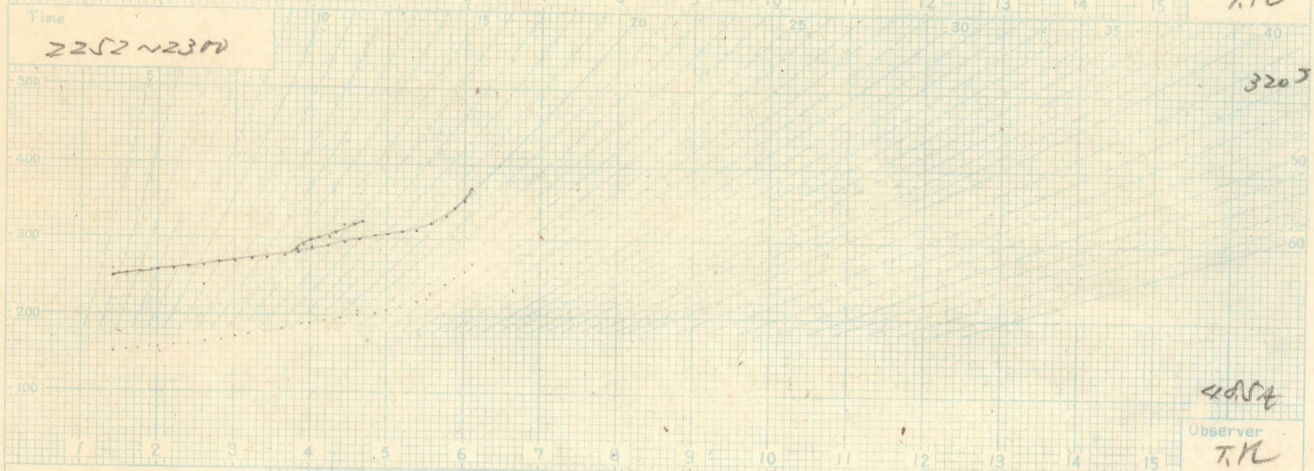
NO 7327



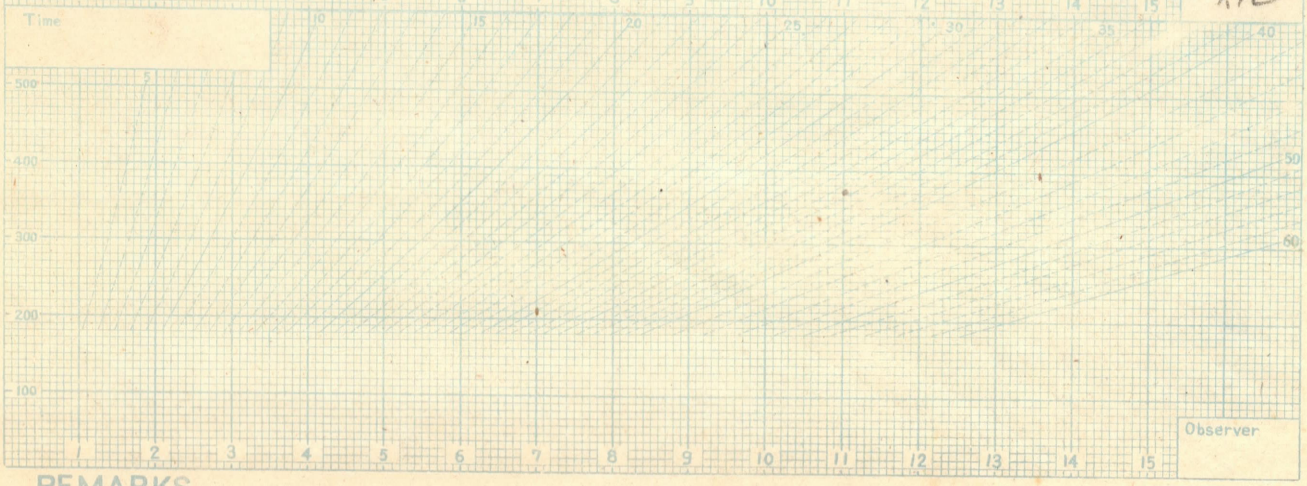
f^oF_2	6.8P
$h'F_2$	200
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.5
fF_{min}	1.3
fE_{min}	1.2
3000 MUF	22.0
M_{3000}	3.2P



f^oF_2	6.9
$h'F_2$	220
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	22.0
M_{3000}	3.1



f^oF_2	5.7J
$h'F_2$	250
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.4
fE_{min}	E
3000 MUF	
M_{3000}	J



f^oF_2	
$h'F_2$	
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

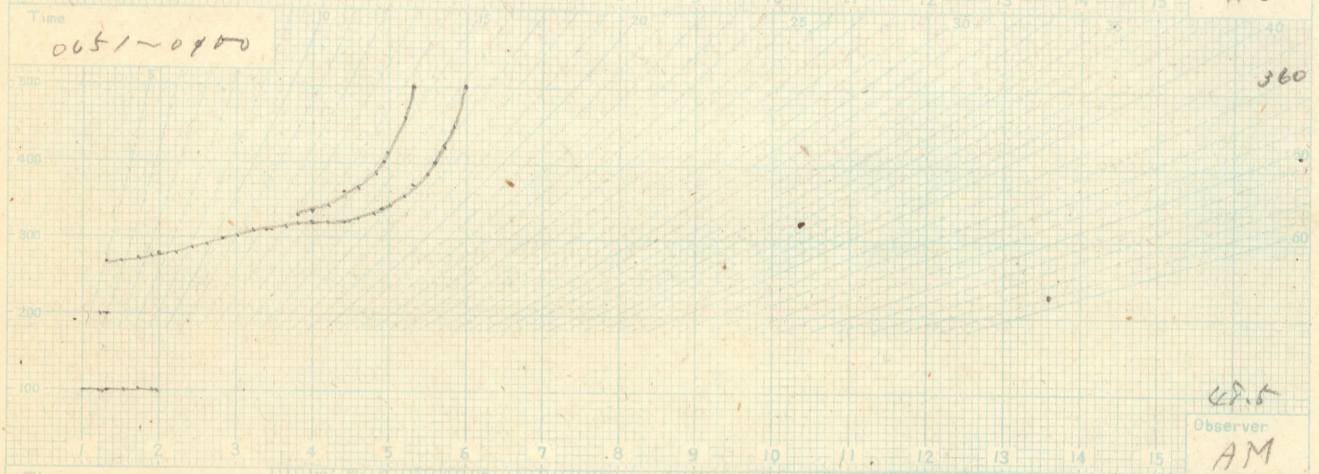
DATE FEB 26 1949

STATION WAKKANAI

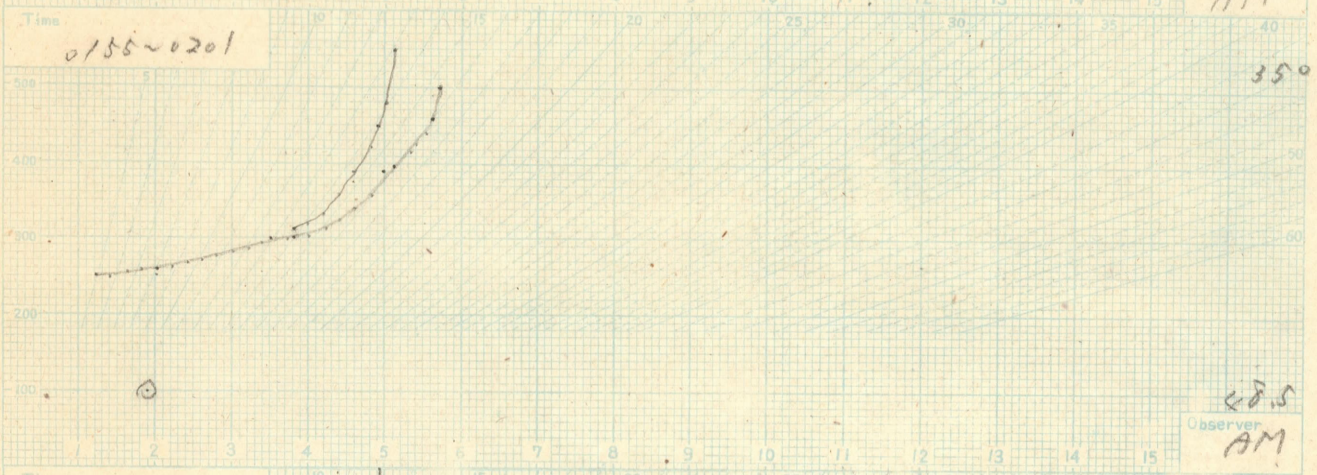
NO 7328



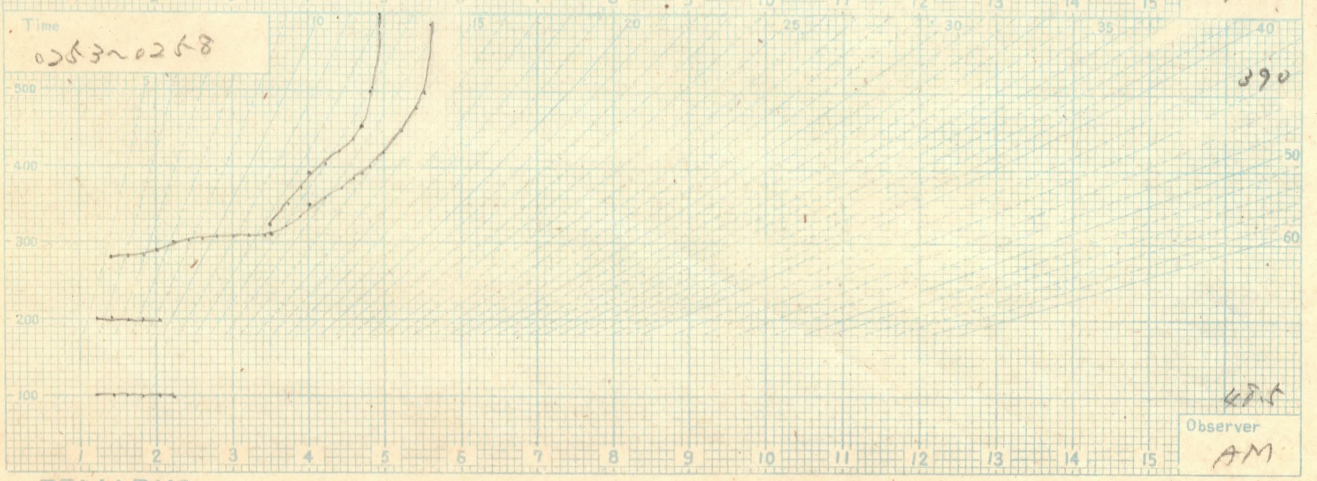
f^oF_2	4.8
$h'F_2$	270
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.7
fF_{min}	1.3
fE_{min}	1.3
3000 MUF	15.0
M_{3000}	3.1



f^oF_2	5.3
$h'F_2$	270
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	2.0
fF_{min}	1.3
fE_{min}	E
3000 MUF	15.0
M_{3000}	2.8



f^oF_2	5.1
$h'F_2$	250
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	B
fF_{min}	1.2
fE_{min}	B
3000 MUF	18.5
M_{3000}	2.8



f^oF_2	4.9
$h'F_2$	280
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	2.2
fF_{min}	1.4
fE_{min}	1.2
3000 MUF	13.5
M_{3000}	2.7

REMARKS

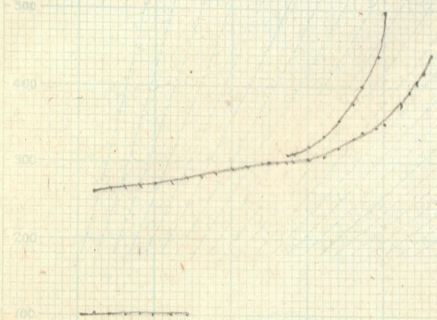
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 26 1949 STATION WAKKANAI NO 7329

VIRTUAL HEIGHT IN KM

Time 0354~0400



330

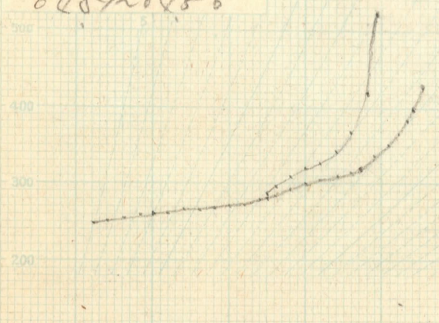
48.6

Observer AM

f^0F_2 3.0
$h'F_2$ 260
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 2.4
fF_{min} 1.2
fE_{min} E
3000 MUF 14.8
M_{3000} 2.9

VIRTUAL HEIGHT IN KM

Time 0448~0456



320

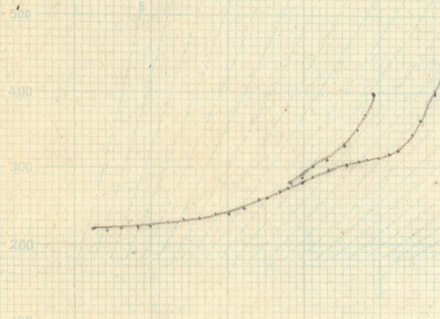
48.6

Observer AM

f^0F_2 3.0
$h'F_2$ 250
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s 1.4
fF_{min} 1.2
fE_{min} 1.2
3000 MUF 15.0
M_{3000} 3.0

VIRTUAL HEIGHT IN KM

Time 0555~0602



310

48.6

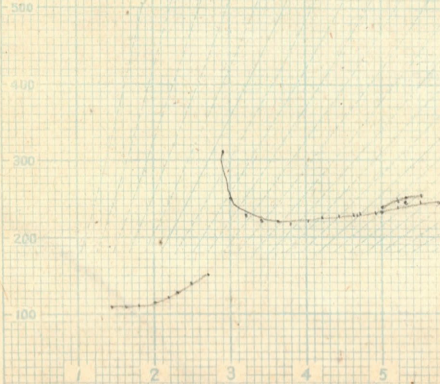
Observer AM

f^0F_2 3.0
$h'F_2$ 220
f^0F_1 0
$h'F_1$ 0
f^0E E
$h'E$ E
fE_s E
fF_{min} 1.2
fE_{min} E
3000 MUF 15.8
M_{3000} 3.1

VIRTUAL HEIGHT IN KM

Time 0806~0818

0833~0813



[310]C 310

48.6

Observer A.M.

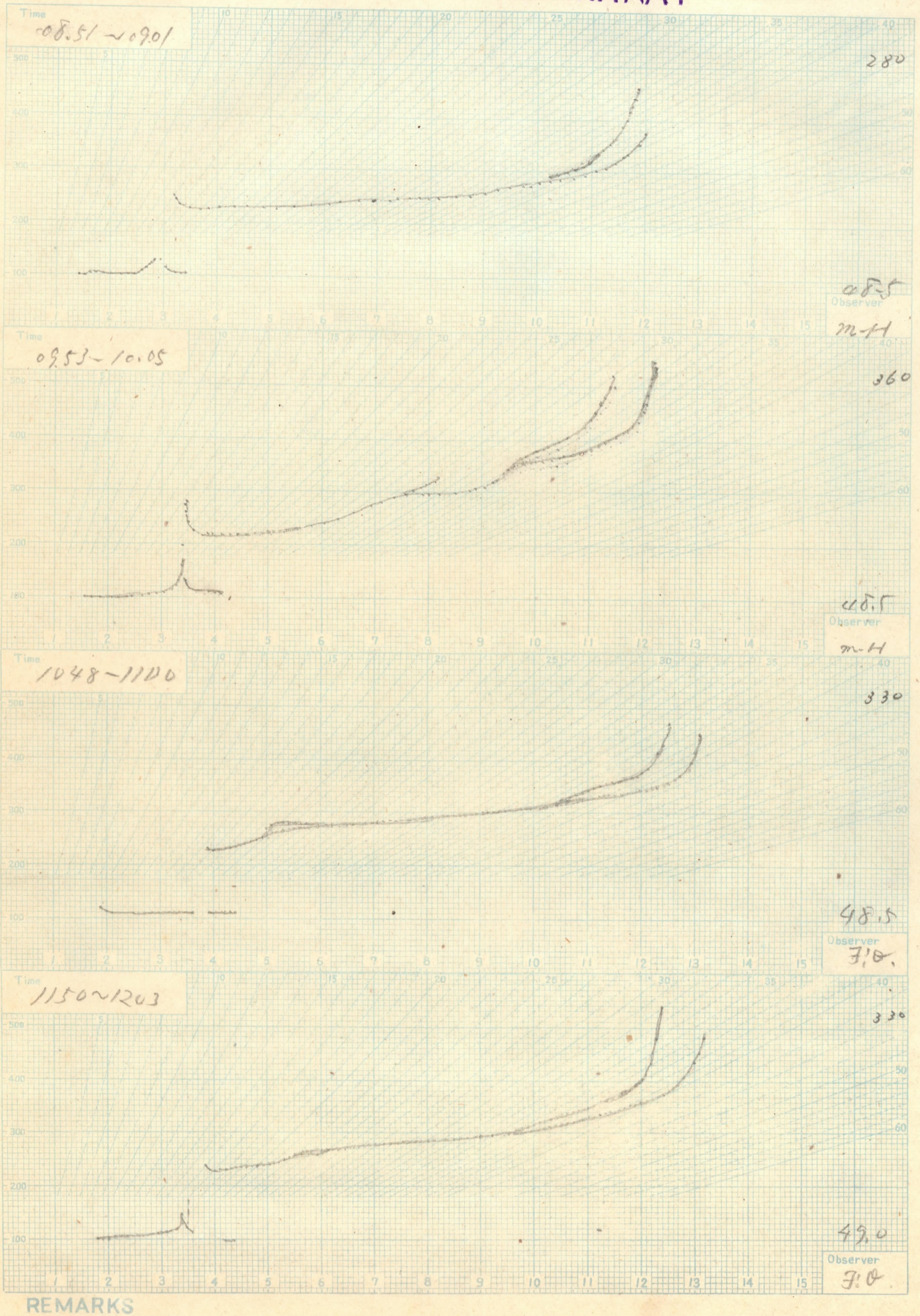
f^0F_2 [8.4]S 11.8
$h'F_2$ [220]S 220
f^0F_1 C 0
$h'F_1$ C 0
f^0E C 2.9
$h'E$ C 110
fE_s C <f_E
fF_{min} [2.1]C 2.9
fE_{min} C 1.4
3000 MUF 36.9
M_{3000} [3.1]C 3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 26 1949 STATION WAKKANAI NO 7330



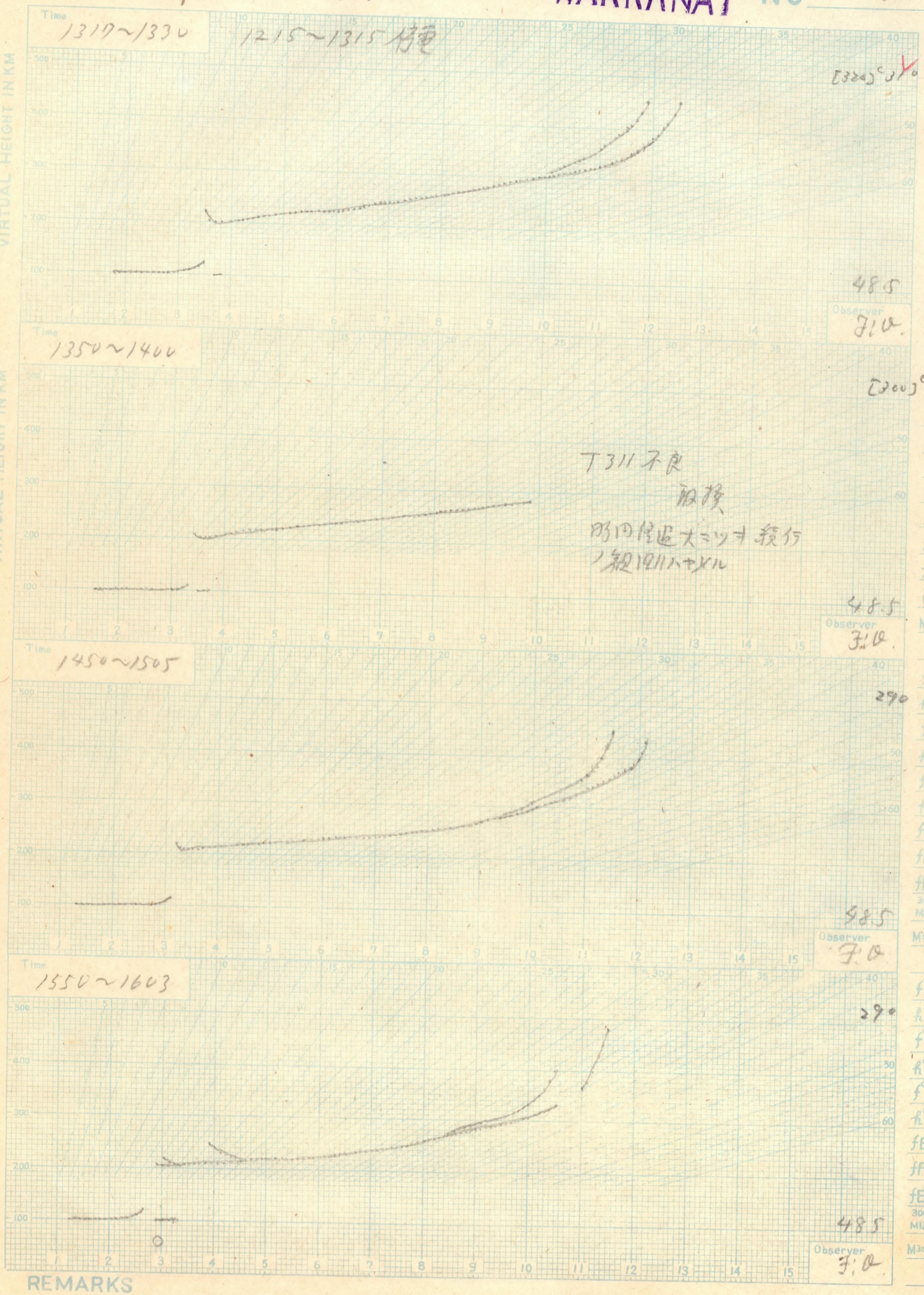
	0851~0901	0953~1005	1048~1100	1150~1203
$f°F_2$	12.0	11.6	12.6	12.4
$h'F_2$	220	300	270	260
$f°F_1$	0	0. L	L	L
$h'F_1$	0	0 220	230	230
$f°E$	2.9	3.4	A	3.4
$h'E$	100	100	A	100
fE_s	3.4	4.1	4.4	4.4
fF_{min}	3.2	3.5	3.9	3.8
fE_{min}	1.4	1.6	1.9	1.8
3000 MUF	39.0	32.5	38.3	37.2
M_{3000}	3.2	2.8	3.0	3.0
	48.5	48.5	48.5	49.0

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 26 1949 STATION WAKKANAI NO 7331



$f°F_2$	[1.22]c 12.1	$f°F_2$	[1.97]c
$h'F_2$	[210]c 200	$h'F_2$	200
$f°F_1$	c 0	$f°F_1$	0
$h'F_1$	c 0	$h'F_1$	0
$f°E$	[3.5]c 3.5	$f°E$	3.4
$h'E$	[100]c 100	$h'E$	100
fE_s	c 3.8	fE_s	3.7
ff_{min}	[3.6]c 3.5	ff_{min}	3.4
fE_{min}	[1.8]c 1.8	fE_{min}	1.5
3000 MUF	36.5	3000 MUF	
M_{3000}	[3.0]c 3.0	M_{3000}	[3.0]c

$f°F_2$	11.6	$f°F_2$	10.6
$h'F_2$	210	$h'F_2$	200
$f°F_1$	0	$f°F_1$	0
$h'F_1$	0	$h'F_1$	0
$f°E$	3.2	$f°E$	2.9
$h'E$	100	$h'E$	100
fE_s	くすE	fE_s	3.3
ff_{min}	3.2	ff_{min}	2.9
fE_{min}	1.3	fE_{min}	1.2
3000 MUF	36.0	3000 MUF	34.6
M_{3000}	3.1	M_{3000}	3.2

REMARKS

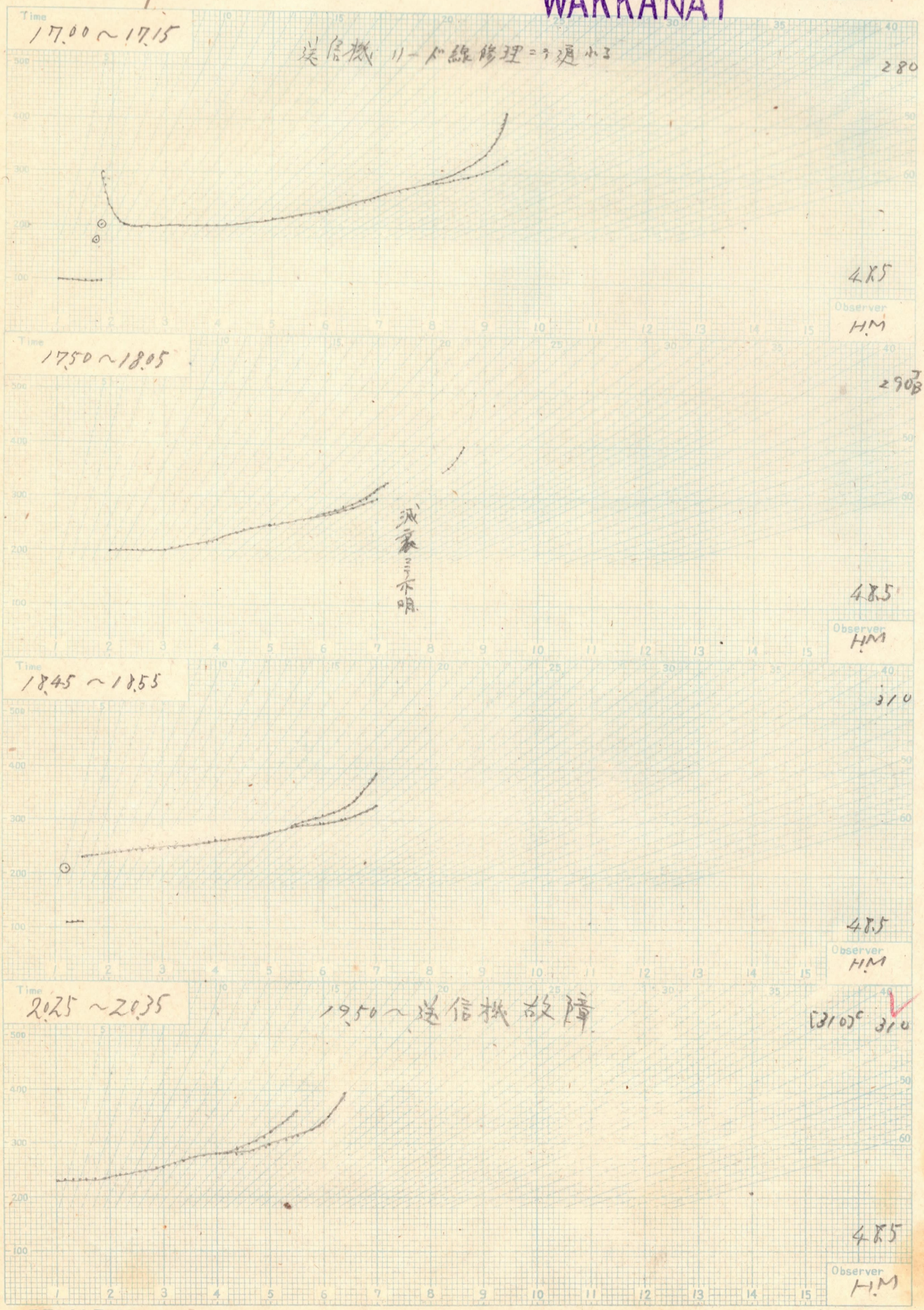
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 26 1949

STATION WAKKANAI

NO 7332



f^oF_2	9.4
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	1.8
$h'E$	A
fE_s	1.8
fF_{min}	1.8
fE_{min}	E
3000 MUF	30.9
M_{3000}	3.2

f^oF_2	8.0 J B
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	B
$h'E$	B
fE_s	B
fF_{min}	2.0
fE_{min}	B
3000 MUF	
M_{3000}	J

f^oF_2	7.2
$h'F_2$	230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	1.5
fF_{min}	A
fE_{min}	1.2
3000 MUF	22.5
M_{3000}	3.1

f^oF_2	[6.3]c 5.8
$h'F_2$	[230]c 230
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	c E
fF_{min}	c E
fE_{min}	[1.4]c E
3000 MUF	18.0
M_{3000}	[3.1]c 3.1

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 26 1949 STATION WAKKANAI NO 7333

VIRTUAL HEIGHT IN KM

Time 20.50 ~ 21.00



320

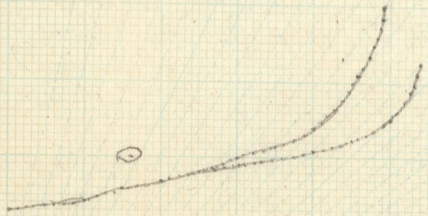
48.5

Observer HM

$f°F_2$	6.3
$h'F_2$	220
$f°F_1$	.
$h'F_1$	
$f°E$	
$h'E$	
fE_s	(2.2)
fF_{min}	1.2
fE_{min}	1.5
3000 MUF	12.1
M_{3000}	3.0

Time 22.00 ~ 22.10

送信機故障.



330

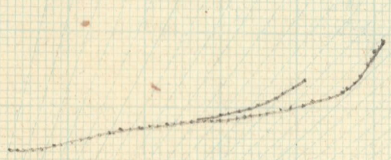
48.5

Observer HM

$f°F_2$	5.9
$h'F_2$	230
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	12.2
M_{3000}	2.9

Time 22.50 ~ 23.03

リーダ斷線.



城家.

320P

48.5

Observer HM

$f°F_2$	5.8P
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	12.5
M_{3000}	3.0P

Time

Observer

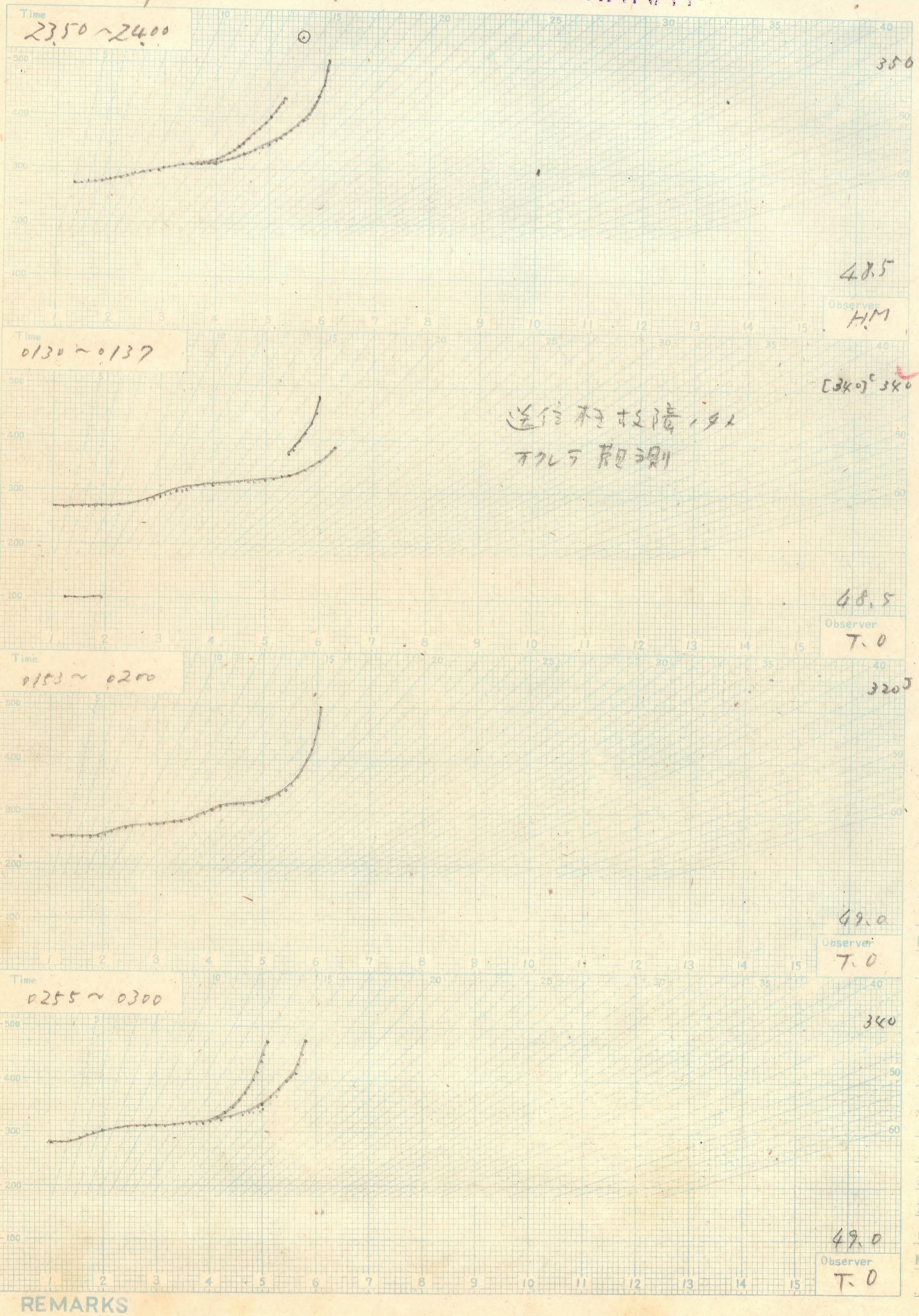
$f°F_2$	
$h'F_2$	
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	
fF_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 27 1949 STATION WAKKANAI NO 7334



REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

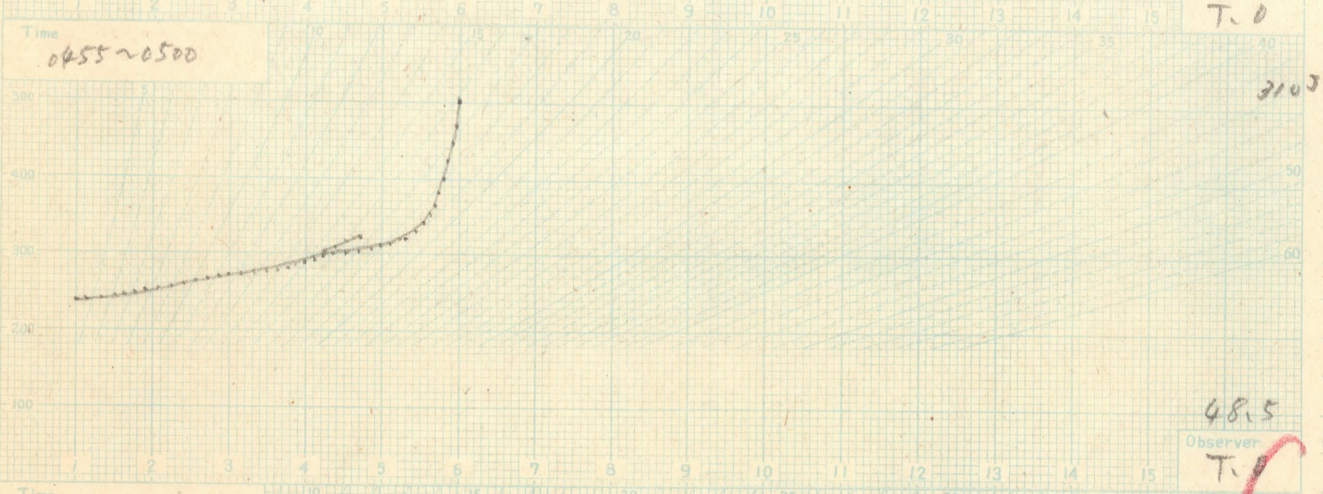
DATE FEB 27 1949

STATION WAKKANAI

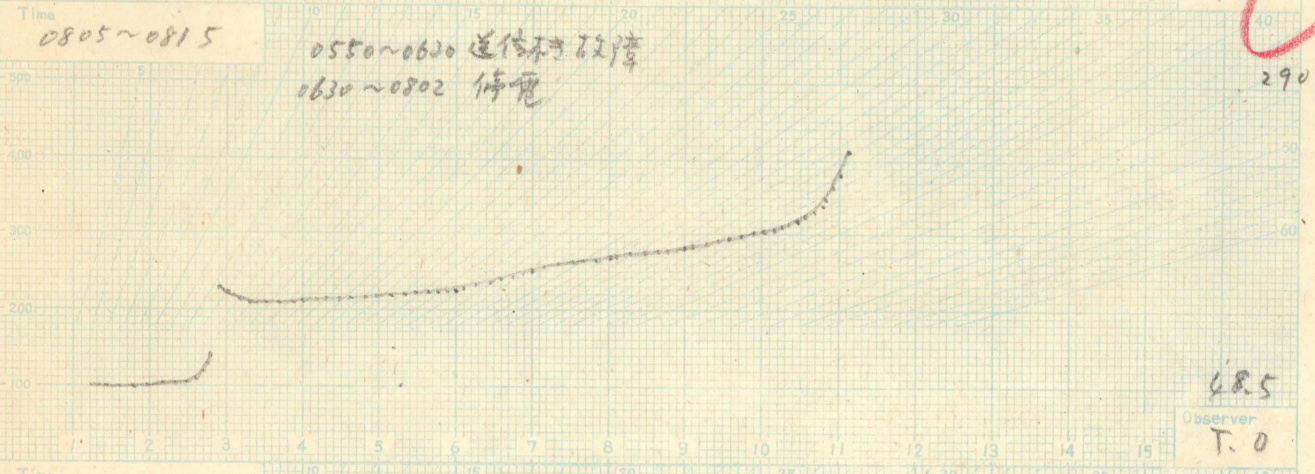
NO 7335



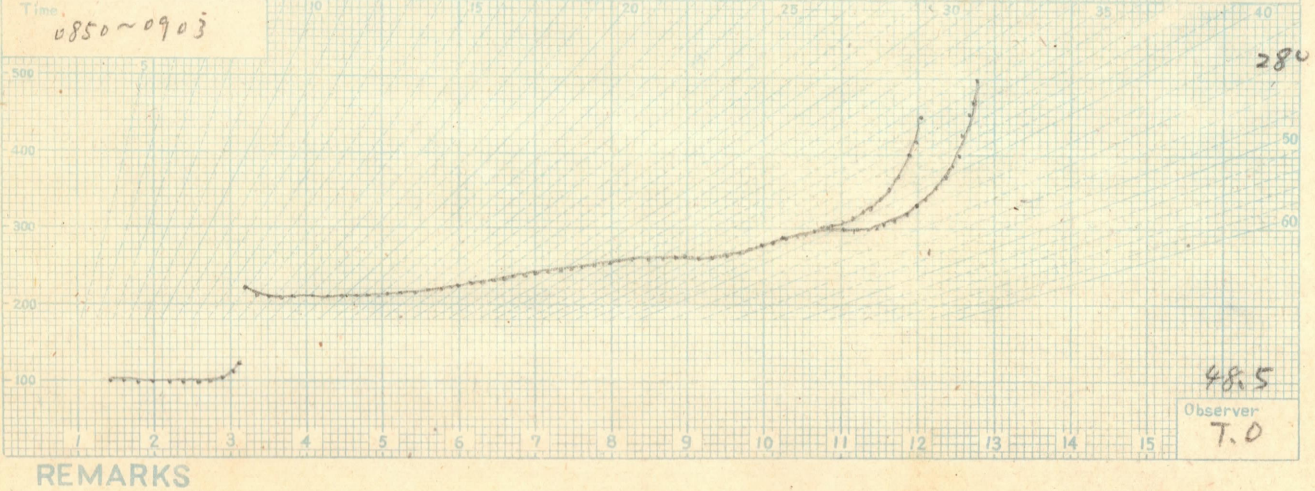
f^oF_2	4.7
$h'F_2$	300
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	12.7
M_{3000}	2.7



f^oF_2	5.8J
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	E
fE_{min}	E
3000 MUF	
M_{3000}	J



f^oF_2	11.2
$h'F_2$	210
f^oF_1	0
$h'F_1$	0
f^oE	2.8
$h'E$	100
fE_s	$<f_E$
fF_{min}	2.9
fE_{min}	1.2
3000 MUF	37.0
M_{3000}	3.3



f^oF_2	12.1
$h'F_2$	210
f^oF_1	0
$h'F_1$	0
f^oE	3.1
$h'E$	100
fE_s	$<f_E$
fF_{min}	3.2
fE_{min}	1.4
3000 MUF	40.0
M_{3000}	3.3

REMARKS

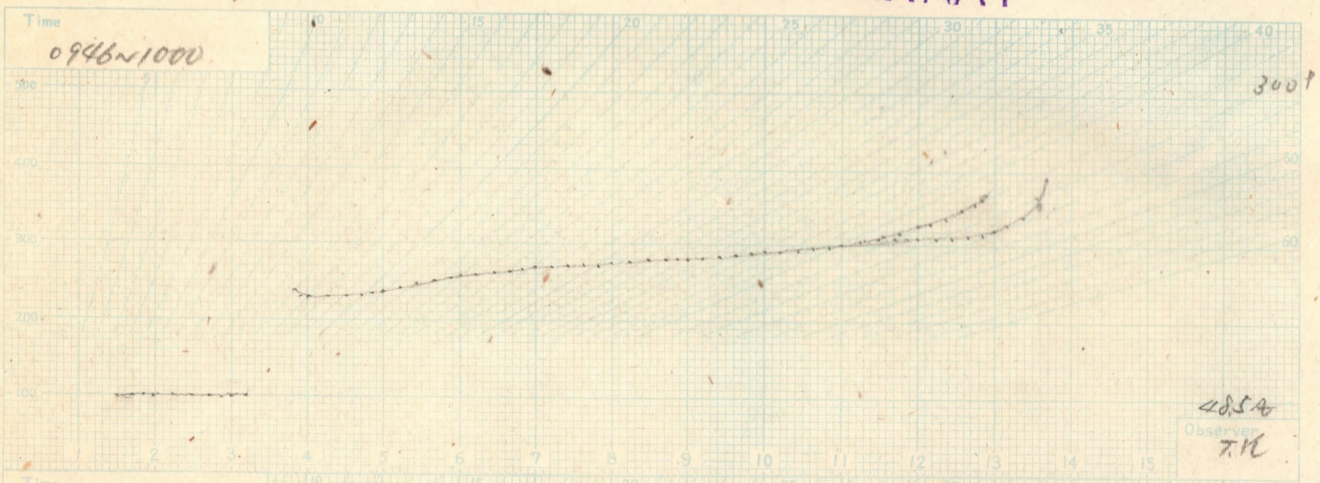
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 27 1949 STATION WAKKANAI NO 7336

VIRTUAL HEIGHT IN KM

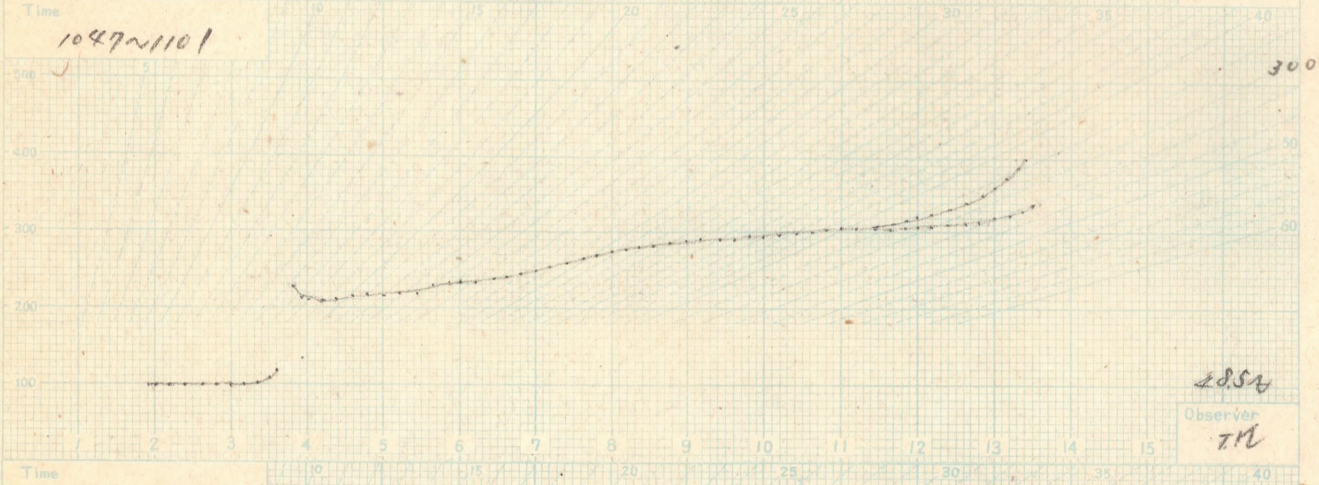
Time 0946~1000



$f°F_2$	13.3 P
$h'F_2$	230
$f°F_1$	—
$h'F_1$	—
$f°E$	B
$h'E$	(100)
fE_s	B
ff_{min}	3.8
fE_{min}	1.5
3000 MUF	42.0
M_{3000}	3.1 P

Observer TM

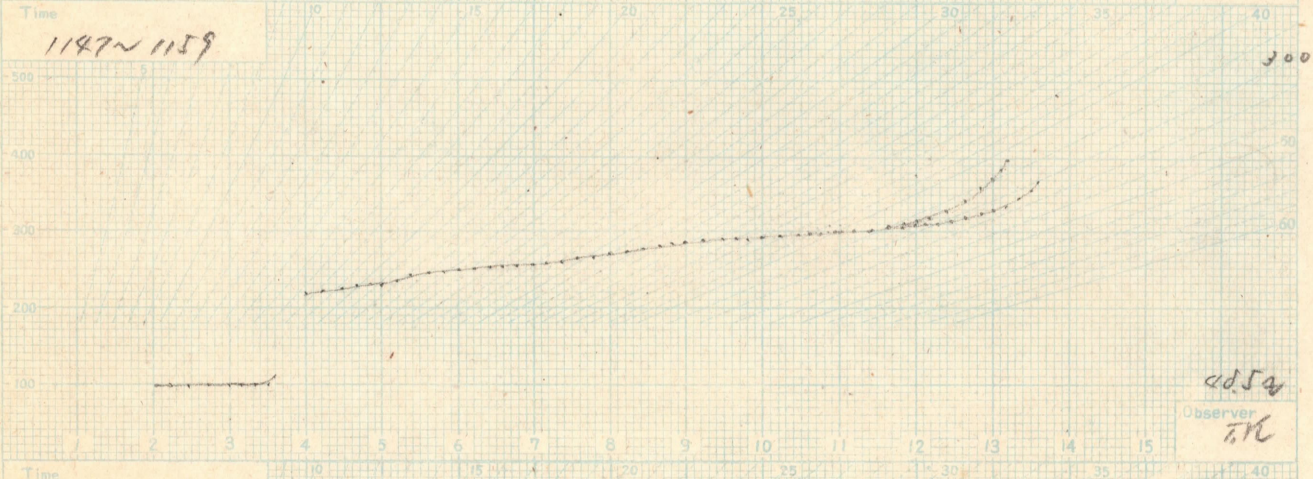
Time 1047~1101



$f°F_2$	13.6
$h'F_2$	210
$f°F_1$	—
$h'F_1$	—
$f°E$	3.7
$h'E$	100
fE_s	$<f_E$
ff_{min}	3.8
fE_{min}	1.7
3000 MUF	42.0
M_{3000}	3.1

Observer TM

Time 1147~1159

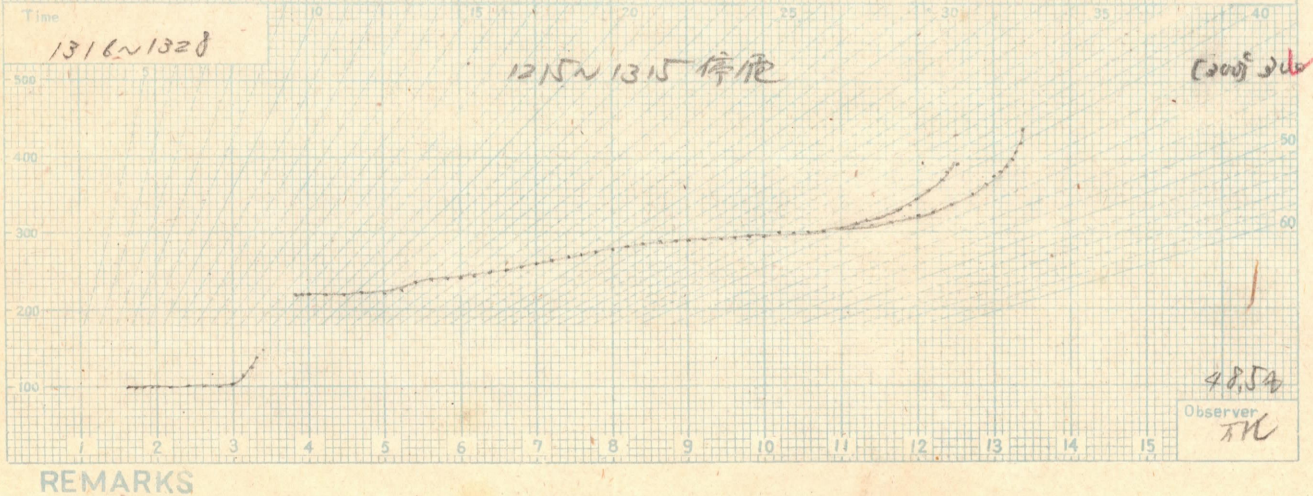


$f°F_2$	13.3
$h'F_2$	240
$f°F_1$	4
$h'F_1$	220
$f°E$	3.7
$h'E$	100
fE_s	B
ff_{min}	4.0
fE_{min}	2.0
3000 MUF	43.0
M_{3000}	3.2

Observer TM

Time 1316~1328

1215~1315 停電



$f°F_2$	[12.9]° 12.7
$h'F_2$	[240]° 240
$f°F_1$	C 4
$h'F_1$	[220] 220
$f°E$	[3.5]° 3.4
$h'E$	[100]° 100
fE_s	C B
ff_{min}	[3.9]° 3.8
fE_{min}	[1.8]° 1.6
3000 MUF	40.5
M_{3000}	[3.1]° 3.1

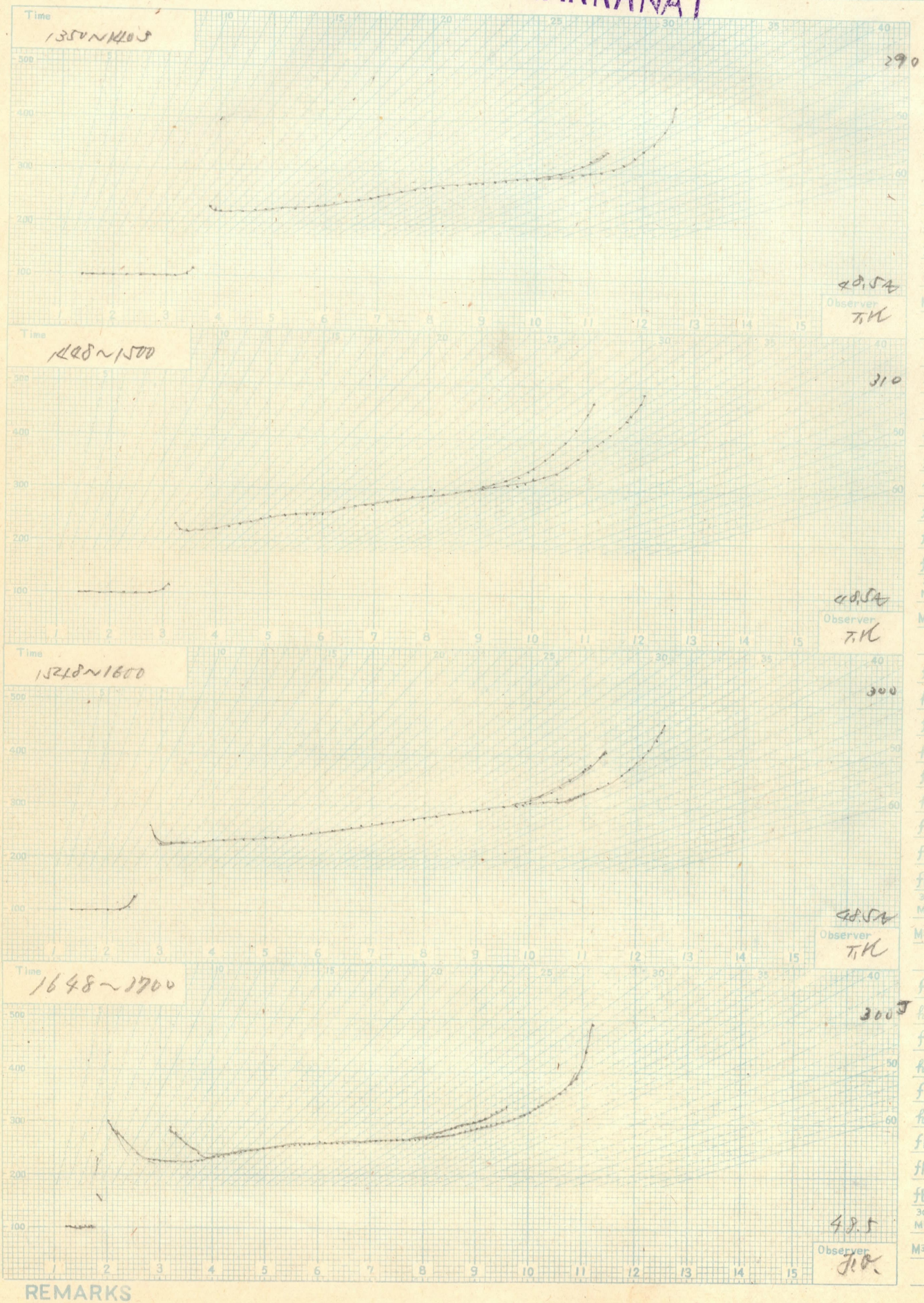
Observer TM

REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 27 1949 STATION WAKKANAI NO 7337



f^0F_2	11.7	f^0F_2	11.2	f^0F_2	11.6	f^0F_2	10.6 J
$h'F_2$	220	$h'F_2$	220	$h'F_2$	220	$h'F_2$	220
f^0F_1	∩	f^0F_1	∩	f^0F_1	∩	f^0F_1	∩
$h'F_1$	∩	$h'F_1$	∩	$h'F_1$	∩	$h'F_1$	∩
f^0E	3.6	f^0E	3.2	f^0E	2.6	f^0E	(1.8)
$h'E$	100	$h'E$	100	$h'E$	100	$h'E$	A
fE_s	.13	fE_s	$<f_E$	fE_s	$<f_E$	fE_s	$<f_E$
fF_{min}	3.8	fF_{min}	3.2	fF_{min}	2.8	fF_{min}	2.0
fE_{min}	1.4	fE_{min}	1.4	fE_{min}	1.3	fE_{min}	1.2
3000 MUF	38.8	3000 MUF	34.0	3000 MUF	36.0	3000 MUF	
M_{3000}	3.3	M_{3000}	3.0	M_{3000}	3.1	M_{3000}	J

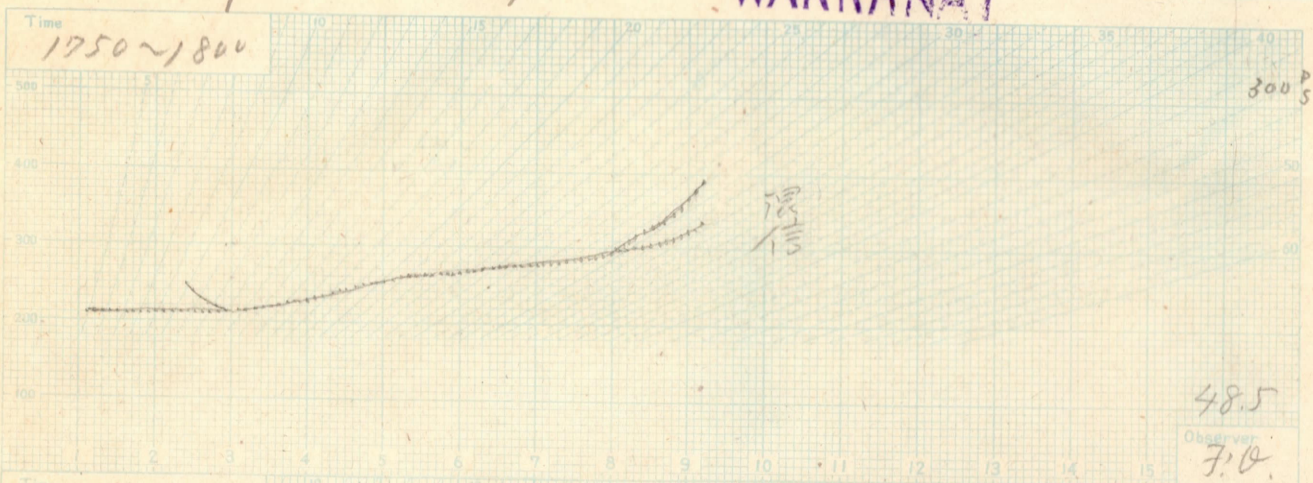
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 27 1949 STATION WAKKANAI NO 7338

VIRTUAL HEIGHT IN KM

Time 1750~1800



$f°F_2$	7.6 P S
$h'F_2$	210
$f°F_1$	0
$h'F_1$	0
$f°E$	E
$h'E$	E
fE_s	E
ff_{min}	1.1
fE_{min}	E
3000 MUF	29.9
M_{3000}	3.1 P S

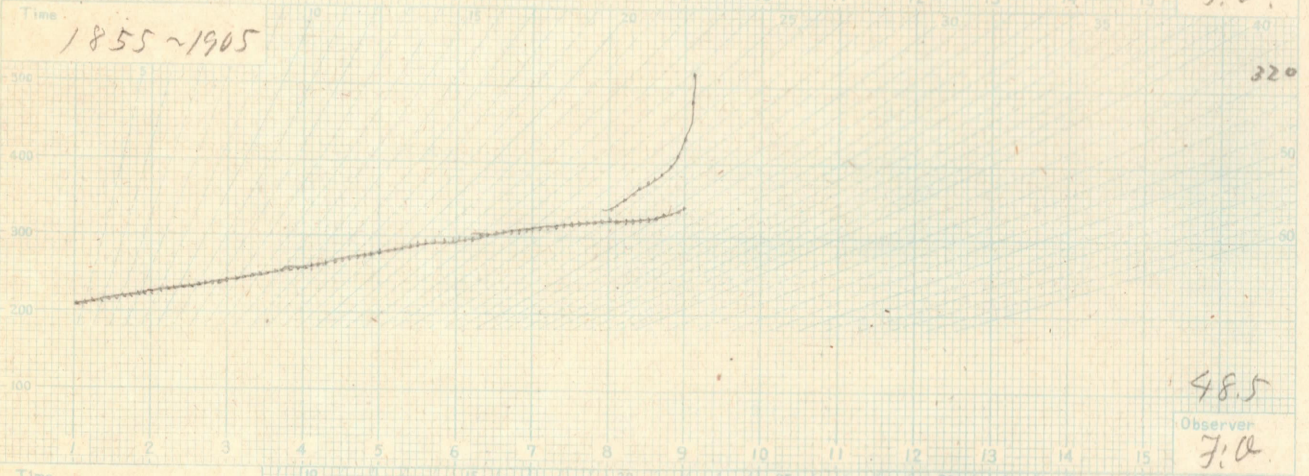
300 P S

48.5

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 1855~1905



$f°F_2$	9.1
$h'F_2$	210
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	27.5
M_{3000}	3.0

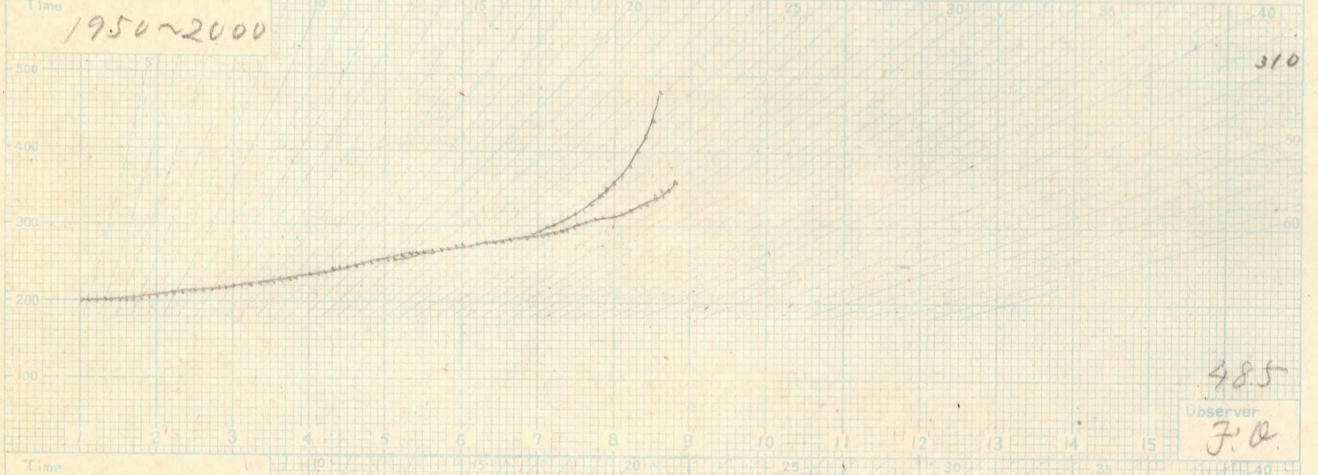
320

48.5

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 1950~2000



$f°F_2$	8.1
$h'F_2$	200
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	26.6
M_{3000}	3.0

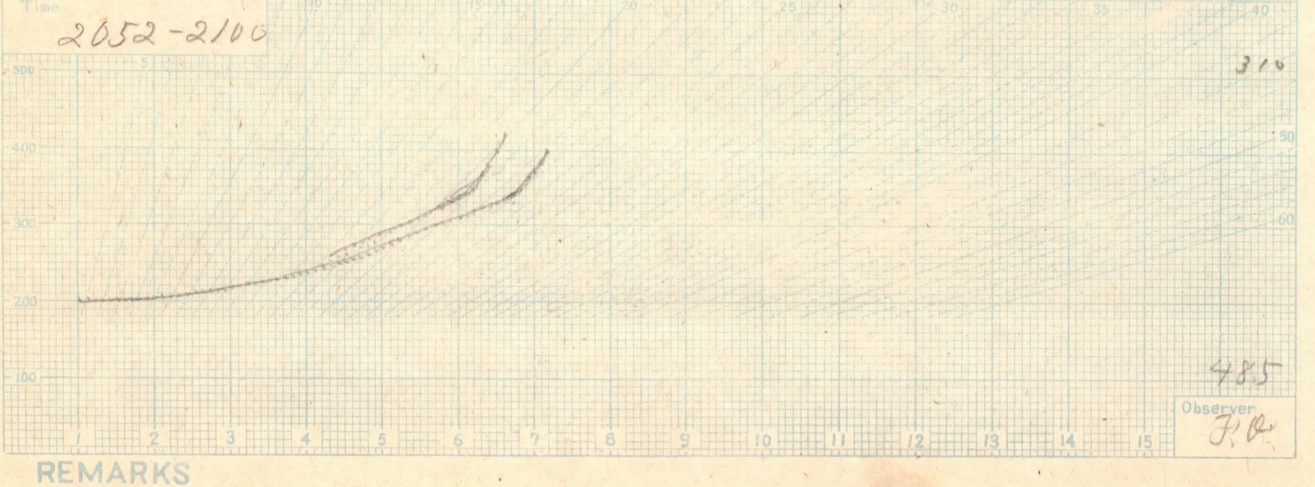
310

48.5

Observer F.O.

VIRTUAL HEIGHT IN KM

Time 2052-2100



$f°F_2$	6.7
$h'F_2$	200
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	20.9
M_{3000}	3.1

310

48.5

Observer F.O.

REMARKS

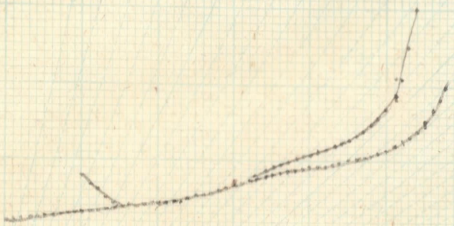
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 27 1949 STATION WAKKANAI NO. 7339

VIRTUAL HEIGHT IN KM

Time 2152~2200



420

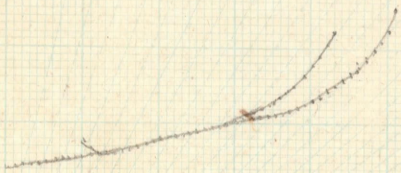
48.5

Observer T.O.

$f°F_2$	6.4
$h'F_2$	220
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	19.5
M_{3000}	3.0

VIRTUAL HEIGHT IN KM

Time 2252~2300



330

48.5

Observer T.O.

$f°F_2$	5.4
$h'F_2$	240
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	E
ff_{min}	E
fE_{min}	E
3000 MUF	16.0
M_{3000}	2.9

VIRTUAL HEIGHT IN KM

Time

Observer

$f°F_2$	
$h'F_2$	
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	
ff_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

VIRTUAL HEIGHT IN KM

Time

Observer

$f°F_2$	
$h'F_2$	
$f°F_1$	
$h'F_1$	
$f°E$	
$h'E$	
fE_s	
ff_{min}	
fE_{min}	
3000 MUF	
M_{3000}	

REMARKS

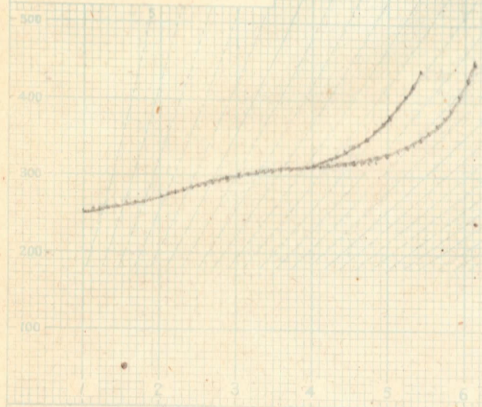
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 28 1949 STATION WAKKANAI NO 7340

VIRTUAL HEIGHT IN KM

Time 2352~0060



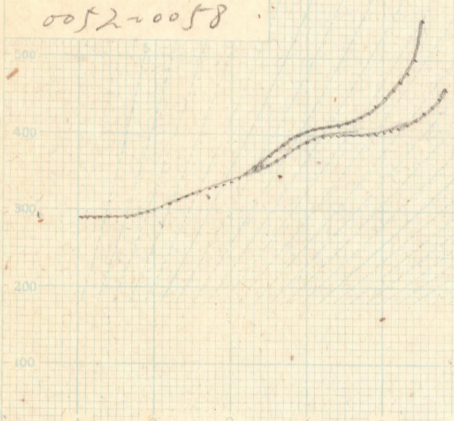
340

49.0

Observer F.O.

f^0F_2 5.6
$h'F_2$ 350
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 16.0
M_{3000} 2.8

Time 0052~0058



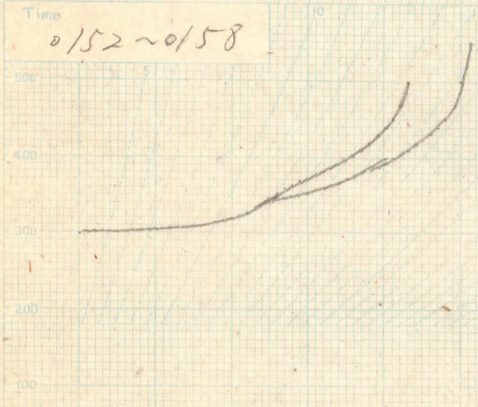
420H

49.0H

Observer S.T.

f^0F_2 5.5 H
$h'F_2$ 290 H
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 14.7 H
M_{3000} 2.6

Time 0152~0158



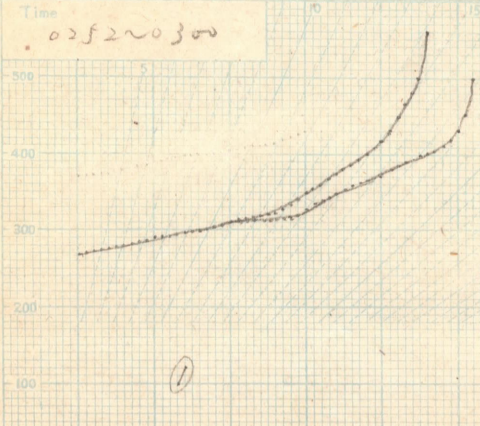
390

49.0

Observer S.T.

f^0F_2 5.3
$h'F_2$ 300
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 14.8
M_{3000} 2.7

Time 0252~0300



390

49.5H

Observer S.T.

f^0F_2 5.6
$h'F_2$ 270
f^0F_1
$h'F_1$
f^0E
$h'E$
fE_s E
ff_{min} E
fE_{min} E
3000 MUF 15.0
M_{3000} 2.6

REMARKS

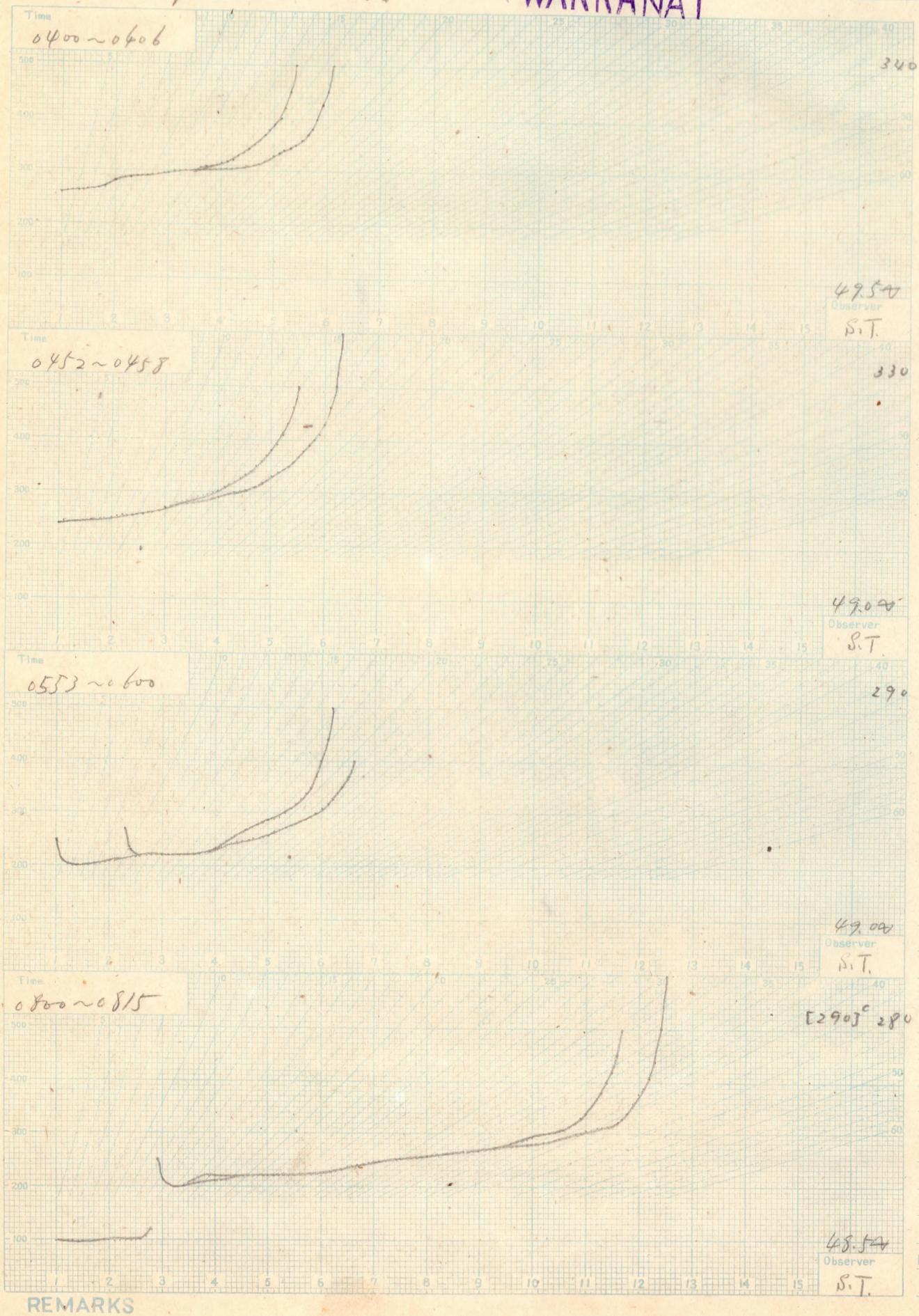
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 28 1949

STATION WAKKANAI

NO 7341



f^oF_2	5.4	
$h'F_2$	260	
f^oF_1		
$h'F_1$		
f^oE		
$h'E$		
fE_s	E	
fF_{min}	E	
fE_{min}	E	
3000 MUF	15.9	
M_{3000}	2.9	
f^oF_2	5.5	
$h'F_2$	240	
f^oF_1		
$h'F_1$		
f^oE		
$h'E$		
fE_s	E	
fF_{min}	E	
fE_{min}	E	
3000 MUF	16.0	
M_{3000}	2.9	
f^oF_2	6.2	
$h'F_2$	200	
f^oF_1	∂	
$h'F_1$	∂	
f^oE	E	
$h'E$	E	
fE_s	E	
fF_{min}	E	
fE_{min}	E	
3000 MUF	19.6	
M_{3000}	3.1	
f^oF_2	[9.0]c	11.7
$h'F_2$	[210]c	220
f^oF_1	C	L
$h'F_1$	C	200
f^oE	C	2.9
$h'E$	C	100
fE_s	C	<f^oE
fF_{min}	C	2.9
fE_{min}	C	E
3000 MUF		38.0
M_{3000}	[3.1]c	3.2

REMARKS

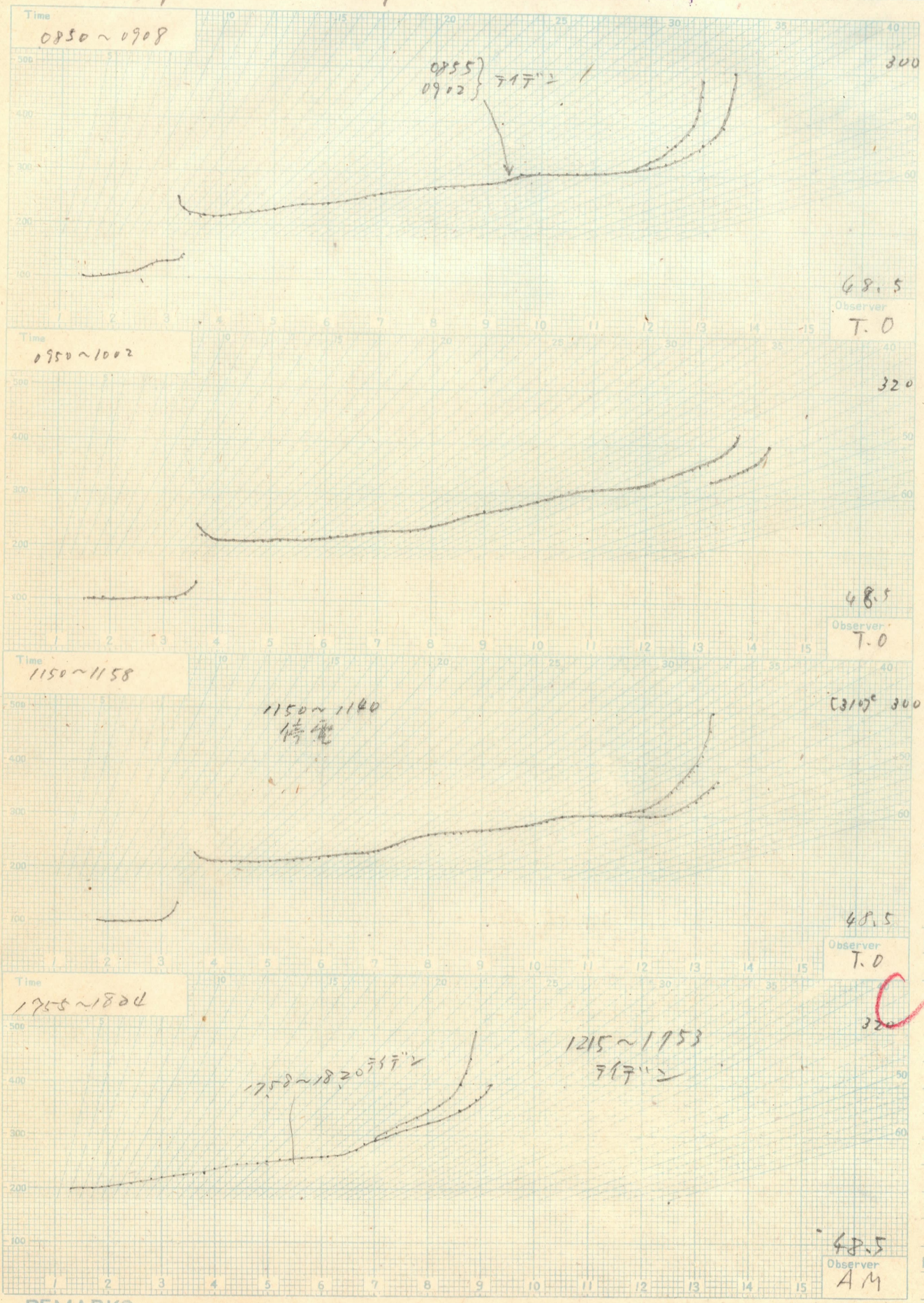
IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 28 1949

STATION WAKKANAI

NO 7342



f^oF_2	13.0
$h'F_2$	220
f^oF_1	0
$h'F_1$	0
f^oE	3.2
$h'E$	(100)
fE_s	3.3
fF_{min}	3.2
fE_{min}	1.4
3000 MUF	42.0
M_{3000}	3.2

f^oF_2	13.9
$h'F_2$	210
f^oF_1	0
$h'F_1$	0
f^oE	3.6
$h'E$	100
fE_s	$<f_E$
fF_{min}	3.6
fE_{min}	1.5
3000 MUF	42.6
M_{3000}	3.0

	1100	1200
f^oF_2	[13.6]c	13.3
$h'F_2$	[240]c	260
f^oF_1	c	0 L
$h'F_1$	c	0 210
f^oE	[3.5]c	3.3
$h'E$	[100]c	100
fE_s	c	$<f_E$
fF_{min}	[3.6]c	3.6
fE_{min}	[1.7]c	1.8
3000 MUF		43.0
M_{3000}	[3.1]c	3.2

f^oF_2	8.9
$h'F_2$	200
f^oF_1	0
$h'F_1$	0
f^oE	E
$h'E$	E
fE_s	E
fF_{min}	1.3
fE_{min}	E
3000 MUF	27.0
M_{3000}	3.0

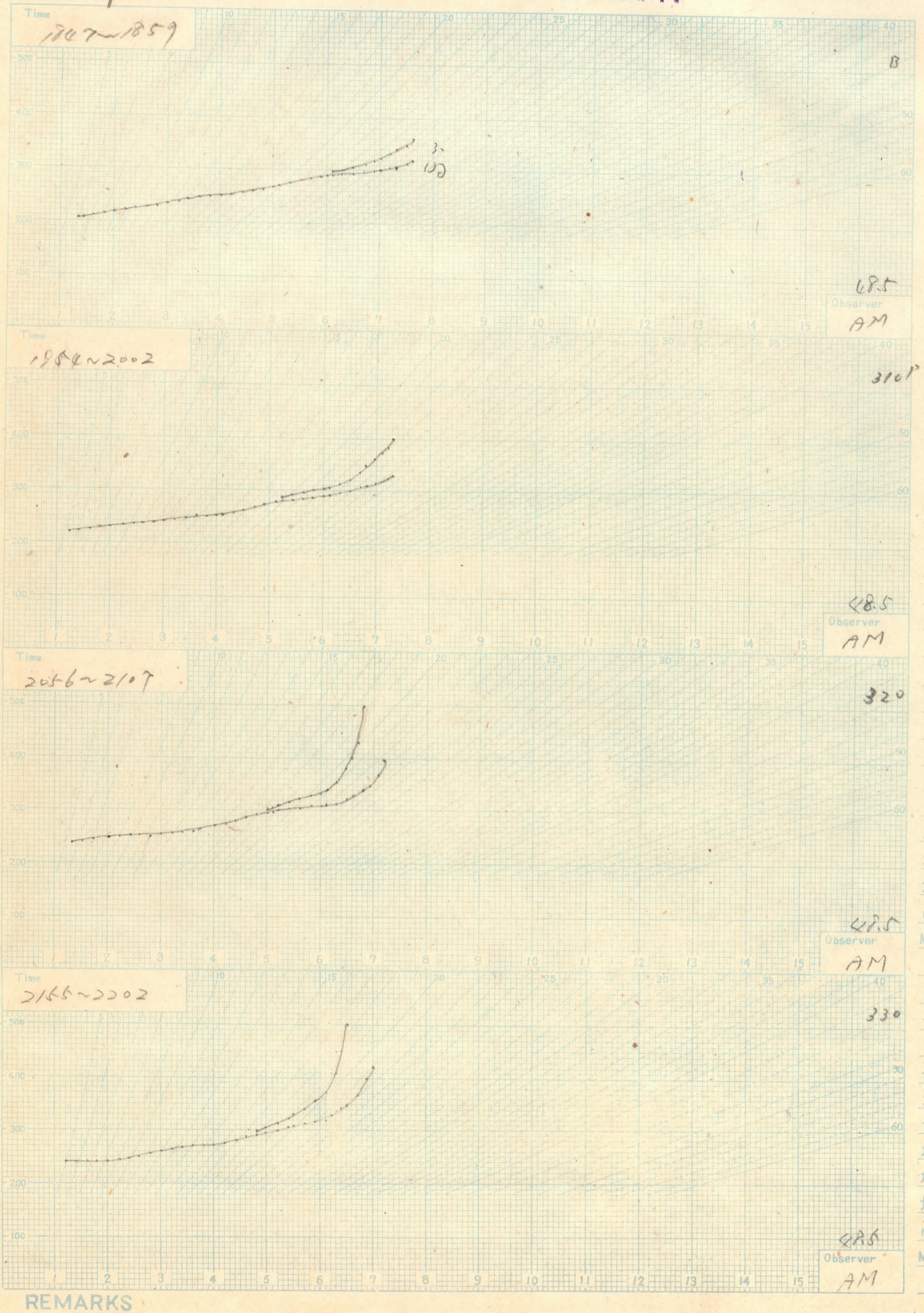
REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 28 1949 STATION WAKKANAI NO 7343

VIRTUAL HEIGHT IN KM



f^0F_2	13	f^0F_2	7.6 P	f^0F_2	6.8	f^0F_2	6.5
$h'F_2$	210	$h'F_2$	220	$h'F_2$	240	$h'F_2$	240
f^0F_1		f^0F_1		f^0F_1		f^0F_1	
$h'F_1$		$h'F_1$		$h'F_1$		$h'F_1$	
f^0E		f^0E		f^0E		f^0E	
$h'E$		$h'E$		$h'E$		$h'E$	
fE_s	E	fE_s	E	fE_s	E	fE_s	E
fF_{min}	1.3	fF_{min}	1.2	fF_{min}	1.3	fF_{min}	1.2
fE_{min}	E	fE_{min}	E	fE_{min}	E	fE_{min}	E
3000 MUF		3000 MUF	23.0	3000 MUF	21.0	3000 MUF	19.8
M_{3000}	B	M_{3000}	3.0 P	M_{3000}	3.0	M_{3000}	3.0

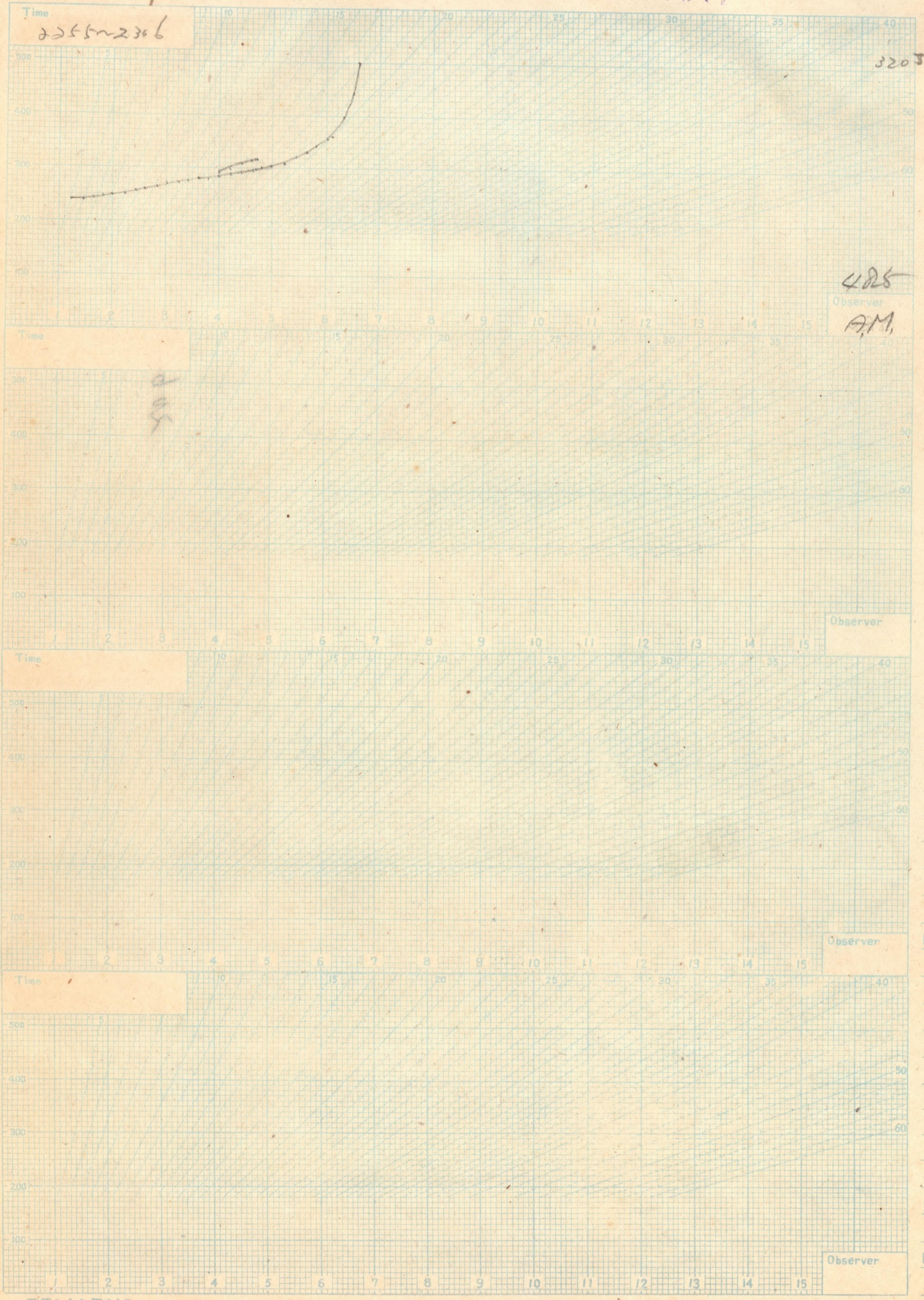
REMARKS

IONOSPHERIC RECORD

135°E MEAN TIME

DATE FEB 28 1949

STATION WAKKANAI NO 7344



f^oF_2	5.9 J
$h'F_2$	240
f^oF_1	
$h'F_1$	
f^oE	
$h'E$	
fE_s	E
fF_{min}	1.2
fE_{min}	E
3000 MUF	
M_{3000}	J

425

A.M.

REMARKS