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2

Hourly Measurements of Ionospheric Characteristics  
Macquarie Island, 1950

*By*

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## INTRODUCTION

Routine h'f ionospheric soundings commenced on June 13th, 1950 at Macquarie Island (Geographic Latitude  $54^{\circ} 29'$  South, Longitude  $158^{\circ} 58'$  East, Geomagnetic Latitude  $61^{\circ}$  South, Longitude  $243^{\circ}$  East). The equipment, originally designed and built at C.S.I.R.O. Radiophysics Laboratory, is, with minor modifications, as described by Higgs (1943).

The recorder sweeps a frequency range from 1.0 to 13.0 mc/s in one minute fifty five seconds and is entirely automatic. The transmitter peak pulse power is approximately 1.5kw and the receiver sensitivity about 10 micro-volt. The record obtained is photographic, on standard 35mm film, and is normally made six times per hour, though for special work continuous recording, i.e., one sweep every two minutes, can be made. Height marks at 50 km intervals, frequency marks at every 0.5 mc/s from 1 to 10 mc/s and at 11, 12 and 13 mc/s, and the time are automatically printed on each record. The frequency-time sweep is logarithmic.

The main modification in the equipment is a change in antenna switching circuits to make possible the use of a single wire Delta antenna (Cones, 1949). Two such antennas, one for transmitting and the other for receiving, rigged at right angles, with 1100 ohm terminating resistors, are supported on a single 70 foot guyed steel mast. The mast is situated 250 feet from the recording building. Two pairs of 600 ohm parallel wire transmission lines connect the recorder to the antenna system.

The radiophysicist on Macquarie Island interprets the film records and at the end of each month telegraphs to Australia the monthly median values of  $f^{\circ}F_2$ , ( $M3000$ ) $F_2$ ,  $f^{\circ}F_1$ , and ( $M3000$ ) $F_1$ . These "provisional figures" are then published in the regular bulletins of the Ionospheric Prediction Service of the Commonwealth Observatory.

The characteristics published in this report are  $f^{\circ}F_2$ ,  $f^{\circ}F_1$ ,  $f^{\circ}E$ ,  $f^{\circ}Es$ ,  $h^{\circ}F_2$ ,  $hpF_2$ ,  $h^{\circ}F_1$ ,  $h^{\circ}E$ ,  $h^{\circ}Es$ , ( $M3000$ ) $F_2$ , ( $M3000$ ) $F_1$ . The symbols and terminology used in these tabulations are, as far as possible, those adopted by U.R.S.I. (1950). The use of the symbol 'g' has been extended to include the case when the measurement of  $hpF_2$  is prevented by retardation in the  $F_1$  layer, the  $F_2$  layer critical frequency being close to that of the  $F_1$  layer. The symbol thus used is included in the median count as a value greater than the median. The symbol 'b' has been used when the characteristic was not measurable because of increased absorption of any type.

When more information is available, special features of the ionosphere measured at Macquarie Island will be the subject of papers to be published in A.N.A.R.E. Reports.

## ACKNOWLEDGMENTS

It is desired to acknowledge the assistance rendered the Antarctic Division by the Ionospheric Prediction Service of the Commonwealth Observatory in lending the equipment and in helping to reduce the results. Particular thanks are due to Mrs. M. Harrison and the I.P.S. Publications Section for the preparation of the results for publication.

Modifying and testing the equipment before despatch to Macquarie Island was done in the laboratory and field station of the Radio Research Board. The co-operation of the officers of the Board is greatly appreciated.

The author installed the recorder at Macquarie Island and made the observations tabulated in this report. The equipment was prepared for service by Mr. G. Major, Ionospheric Research Officer, A.N.A.R.E., who also erected the aerials at Macquarie Island and planned and supervised the project.

HOURLY VALUES OF  $f^{\circ}\text{F2}$  OBSERVED DURING JUNE 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11
1												
2	3.0	1.0	1.2	1.3	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
3	3.6	1.4	1.5	1.6	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
4	5.8	3.0	3.1	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
5												
6												
7												
8												
9												
10												
11												
12												
13		c	c	c	c	c	c	c	c	c	c	c
14		3.4f	3.3f	3.6f	3.4f	3.6f	3.4f	3.4f	3.4f	3.4f	3.4f	3.4f
15		f	3.5f	b	4.0f	3.9f	3.9f	3.9f	3.9f	3.9f	3.9f	3.9f
16		c	c	c	c	c	c	c	c	c	c	c
17		c	c	c	c	c	c	c	c	c	c	c
18		c	c	c	c	c	c	c	c	c	c	c
19		3.1f	3.1f	2.7f	2.7f	2.7f	2.7f	2.7f	2.7f	2.7f	2.7f	2.7f
20		c	c	c	c	c	c	c	c	c	c	c
21		c	c	c	c	c	c	c	c	c	c	c
22		c	c	c	c	c	c	c	c	c	c	c
23		c	c	c	c	c	c	c	c	c	c	c
24		c	c	c	c	c	c	c	c	c	c	c
25		c	c	c	c	c	c	c	c	c	c	c
26		c	c	c	c	c	c	c	c	c	c	c
27		3.5f	3.6f	3.5f	3.7f	3.2f	3.2f	3.1f	3.1f	3.1f	3.1f	3.1f
28		4.0f	3.5f	3.5f	3.9f	3.9f	3.9f	3.5f	3.5f	3.5f	3.5f	3.5f
29		2.2f	2.6f	2.7f	2.6f	2.9f	3.2f	2.2f	2.6f	2.6f	2.6f	2.6f
30		5.5	b	b	b	b	b	b	b	b	b	b
Median No.	(3.4f)	(3.4f)	*	(3.6f)	(3.3f)	(3.2f)	(2.8f)	(2.6f)	(4.2)	(5.5)	(6.6)	(7.0)
	6	6		6	6	6	6	6	7	7	6	6

Sweed: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T.

MACQUARIE ISLAND f°F2, JUNE 1950

HOURLY VALUES OF  $f^{\circ}\text{E}$  OBSERVED DURING JUNE 1950 AT MACQUARIE ISLAND

Day	Hour	08	09	10	11	12	13	14	15
1	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13	c	c	c	c	c	c	c	c
	14	a	a	a	a	a	a	a	a
	15	a	1.8	1.9	2.0	2.1	2.3	2.0	c
	16	c	c	c	c	c	c	c	c
	17	c	c	c	c	c	c	c	c
	18	c	c	c	c	c	c	c	c
	19	c	c	c	c	c	c	c	c
	20	c	c	c	c	c	c	c	c
	21	c	c	c	c	c	c	c	c
	22	c	c	c	c	c	c	c	c
	23	c	c	c	c	c	c	c	c
	24	c	c	c	c	c	c	c	c
	25	c	c	c	c	c	c	c	c
	26	c	c	c	c	c	c	c	c
	27	a	1.9	2.3	a	a	a	c	c
	28	a	1.7	2.3	2.5	2.5	2.4	2.2	c
	29	1.4	1.9	2.2	2.5	2.6	2.5	2.1	1.8
	30	a	b	2.4	a	b	b	b	b
Median No.	*	1.9	2.3	2.3	*	*	*	*	*

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T.

MACQUARIE ISLAND  $f^{\circ}\text{E}$ , JUNE 1950

HOURLY VALUES OF h'F2 OBSERVED DURING JUNE 1950 AT MACQUARIE ISLAND

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Day																								
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
Median No.	(275)	(260)	*	(255)	(255)	(225)	(240)	(200)	(200)	(195)	(200)	*	*	*	(200)	*	(215)	(230)	(250)	*	*	(260)	*	
No.	6	6		6	6	6	6	6	6	6	6	5		5	5	5	5	5	5	5	5	5	5	

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND h'F2, JUNE 1950

HOURLY VALUES OF h'E OBSERVED DURING JUNE 1950 AT MACQUARIE ISLAND

Hour Day	08	09	10	11	12	13	14	15
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13	c	c	c	c	c	c	c	c
14	a	a	a	100	100	100	a	100
15	a	b	a	a	c	c	c	c
16	c	c	c	c	c	c	c	c
17	c	c	c	c	c	c	c	c
18	c	c	c	c	c	c	c	c
19	e	e	100	c	c	c	c	c
20	c	c	c	c	c	c	c	c
21	c	c	c	c	c	c	c	c
22	c	c	c	c	c	c	c	c
23	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c
27	a	90	100	a	a	a	a	c
28	a	100	100	100	100	100	100	c
29	100	100	100	100	100	100	100	100
30	a	b	110	a	b	b	b	b
Median No.	*	*	100	*	*	*	*	*

No Record 1st. - 12th.

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND h'E, JUNE 1950

HOURLY VALUES OF (M 3000)F2 OBSERVED DURING JUNE 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
Median	(3.4)(3.2)	*	(3.2)(3.0)(3.1)(3.3)(3.4)(3.6)(3.7)(3.8)(3.0)(3.7)	*	*	*	*	*	*	*	*	*	*	*	(3.6)	*	(3.4)(3.3)(3.1)	*	*	(3.1)				
No.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND (M 3000) F2, JUNE 1950

HOURLY VALUES OF  $f^{\circ}\text{F2}$  OBSERVED DURING JULY 1950 AT MACQUARIE ISLAND

Hour	12	13	14	15	16	17	18	19	20	21	22	23
Day												
1	3.4	c	c	c	c	c	c	c	c	3.2f	3.4f	b
2	7.0	6.3	7.2	6.5f	5.8	5.8	5.8	5.8	5.8	4.0f	3.2f	3.5
3	5.8	c	c	c	c	c	c	c	c	3.5f	3.6f	c
4	5.8	c	c	c	c	c	c	c	c	c	c	c
5	5.8	c	c	c	c	c	c	c	c	c	c	c
6	5.8	c	c	c	c	c	c	c	c	c	c	c
7	5.2	c	c	c	c	c	c	c	c	c	c	c
8	5.2	c	c	c	c	c	c	c	c	c	c	c
9	5.2	c	c	c	c	c	c	c	c	c	c	c
10	5.2	c	c	c	c	c	c	c	c	c	c	c
11	c	c	c	c	c	c	c	c	c	c	2.8	3.6f
12	c	b	c	b	c	b	c	c	c	c	c	c
13	c	5.4	5.1	6.1	5.7	5.7	5.6	5.6	5.6	3.6f	b	b
14	c	5.8	6.1	c	c	c	c	c	c	5.0	3.5f	3.0
15	c	c	c	c	c	c	c	c	c	c	c	c
16	c	6.8	7.5	c	c	c	c	c	c	4.3	4.0	b
17	c	7.7	7.1	7.5	c	c	c	c	c	3.5	[3.3]	c
18	c	7.0	8.0	7.4	c	c	c	c	c	c	2.5f	3.0f
19	c	7.5	7.4	c	8.0	c	c	c	c	c	c	c
20	c	c	8.0	7.5	c	c	c	c	c	6.4	c	3.1
21	c	c	7.5	8.0	7.2	7.0	6.5	6.5	6.5	4.7	3.6	3.6f
22	c	c	7.5	7.5	7.5	7.5	c	c	c	3.5f	3.6f	b
23	c	6.6	7.0	7.0	7.2	7.2	6.4	6.4	6.4	5.9	c	2.9
24	c	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	c	c	c
27	c	c	c	c	c	c	c	c	c	c	c	c
28	c	c	c	c	c	c	c	c	c	c	c	c
29	c	c	c	c	c	c	c	c	c	(6.5)	(4.4)	4.0
30	c	7.0	7.2	7.4	(7.1)	(7.3)	(7.5)	(7.2)	(7.1)	5.0f	(5.6)	2.5f
31	c	6.4	(7.1)	(7.1)	c	c	(6.3f)	(7.3)	c	4.2f	3.2	2.5f
Median No.	(7.0)	7.1	7.4	(7.2)	(7.1)	(7.1)	6.4	(4.5)	*	(3.5)	3.1f	(3.5)
	9	13	12	9	8	8	10	8	9	11	10	9

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND f°F2, JULY 1950

HOURLY VALUES OF  $f^{\circ}\text{E}$  OBSERVED DURING JULY 1950 at MACQUARIE ISLAND

Hour Day	08	09	10	11	12	13	14	15	16
1	1.8	2.2	2.4	c	c	c	c	c	c
2	a	1.9	b	2.5	c	c	c	a	e
3	a	a	1.9	a	a	a	2.5	2.4	a
4	c	c	c	c	c	c	c	c	c
5	c	c	c	c	c	c	c	c	c
6	c	c	c	c	c	c	c	c	c
7	c	c	c	c	c	c	c	c	c
8	c	c	c	c	c	c	c	c	c
9	c	c	c	c	c	c	c	c	c
10	c	c	c	c	c	c	c	c	c
11	c	c	c	c	c	c	c	c	c
12	b	b	b	b	b	b	c	b	b
13	b	b	b	b	b	b	c	b	c
14	1.8	2.2	c	a	a	2.6	b	2.4	a
15	c	c	c	c	c	c	c	c	c
16	e	1.9	a	c	c	c	2.4	a	c
17	a	2.0	2.3	2.5	2.6	2.5	2.3	c	c
18	e	1.8	c	c	c	c	2.4	c	c
19	a	2.2	2.4	2.7	2.6	2.5	c	a	c
20	c	c	c	c	c	c	2.4	c	c
21	e	2.1	2.3	2.7	c	c	2.6	2.4	e
22	b	b	c	c	c	c	2.6	2.5	e
23	c	c	c	c	c	c	2.7	2.7	a
24	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c
27	c	c	c	c	c	c	c	c	c
28	c	c	c	c	c	c	c	c	c
29	c	c	c	c	c	c	c	c	c
30	a	2.1	2.4	2.6	2.6	2.6	2.5	c	e
31	a	a	2.5	2.5	2.7	2.6	(2.5)	2.3	(2.2)
Median No.	e	2.1	2.4	2.6	2.6	2.6	2.4	2.3	e
	5	9	6	5	8	10	11	5	5

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T.

MACQUARIE ISLAND f°E, JULY 1950

HOURLY VALUES OF H<sup>+</sup>F2 OBSERVED DURING JULY 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	b	b	b	b	b	b	b	260	220	230	c	c	c	c	c	c	c	c	c	c	260	250	300	b
2	310	300	310	320	300	300	280	310	210	210	b	210	200	c	190	250	200	220	c	250	250	c	a	
3	300	260	260	260	c	270	270	300	210	200	190	200	210	190	200	c	200	200	c	220	230	c	c	
4	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
6	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
9	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
11	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
12	280	c	c	b	b	b	b	b	260	260	b	260	260	c	b	b	b	c	c	c	c	b	300	240
13	b	b	b	b	b	b	b	b	260	240	230	220	220	c	250	290	b	c	b	c	c	c	c	c
14	b	350	350	340	b	300	260	260	220	210	c	240	220	210	210	210	210	200	220	b	b	b	b	b
15	300	270	260	250	250	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	280	250	280	280
16	290	290	b	300	300	270	270	240	270	200	190	200	c	200	200	c	c	c	c	c	c	c	c	c
17	300	260	250	240	230	230	230	250	210	200	210	190	200	c	290	200	c	c	c	c	c	c	c	c
18	c	300	260	250	250	220	220	230	220	190	180	c	c	200	200	200	c	c	c	c	c	c	c	c
19	310	310	250	250	230	220	230	240	190	200	190	200	200	c	180	c	190	c	c	c	c	c	c	c
20	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
21	260	260	260	250	250	250	250	250	200	200	200	200	c	200	200	c	c	c	c	c	c	c	c	c
22	270	260	290	260	250	240	240	250	210	200	c	c	c	200	200	210	210	210	c	220	c	c	c	c
23	b	300	300	300	280	260	260	c	c	c	c	c	c	190	200	200	200	200	c	c	c	c	c	c
24	c	260	280	270	250	270	270	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
29	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
30	240	240	250	250	230	240	270	b	220	200	200	190	200	210	200	200	210	210	200	200	210	220	270	270
31	300	270	260	270	260	260	250	240	200	200	180	210	180	210	210	210	210	210	210	210	210	260	260	280
Median No.	300	270	260	260	250	260	250	250	210	200	200	200	(200)	200	200	(200)	205	(215)	*	(260)	250	275	(265)	8
Median No.	11	14	13	14	12	13	12	11	14	13	10	11	9	13	12	9	8	10	8	9	10	10	8	8

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T.

MACQUARIE ISLAND h'F2, JULY 1950

HOURLY VALUES OF  $h^*F1$  OBSERVED DURING JULY 1950 AT MACQUARIE ISLAND

Hour Day	10	11	12	13	14
1	200	c	c	c	c
2	q	q	q	c	c
3	q	q	q	q	c
4	c	c	c	c	c
5	c	c	c	c	c
6	c	c	c	c	c
7	c	c	c	c	c
8	c	c	c	c	c
9	c	c	c	c	c
10	c	c	c	c	c
11	c	c	c	c	c
12	q	q	q	b	200
13	q	q	q	c	q
14	c	c	200	210	200
15	c	c	c	180	c
16	q	q	c	c	c
17	q	q	q	q	q
18	c	c	c	q	q
19	q	q	q	q	q
20	c	c	c	q	c
21	q	q	c	q	q
22	c	c	c	q	q
23	c	c	q	q	q
24	c	c	c	c	c
25	c	c	c	c	c
26	c	c	c	c	c
27	c	c	c	c	c
28	c	c	c	c	c
29	q	q	q	180	q
30	q	q	q	q	q
31	*	*	*	*	*
Median No.					

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND h'F1.JULY 1950

HOURLY VALUES OF  $\text{h}^{\circ}\text{Es}$  OBSERVED DURING JULY 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	90	90	90	90	90	90	90	100	90	8	c	c	c	c	c	c	c	c	c	c	120	110	100	100
2	100	100	100	100	e	110	100	c	90	b	b	c	c	c	c	c	100	110	c	100	100	c	100	
3	100	100	90	e	c	100	100	100	90	100	100	90	150	100	100	100	e	c	e	175	c	c	c	
4	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
5	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
6	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
9	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
11	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
12	100	c	c	100	100	b	b	b	100	b	b	b	c	100	c	100	b	c	90	c	c	c	c	
13	90	80	90	90	90	90	90	90	b	b	b	b	b	100	100	b	c	100	100	c	100	90	90	
14	90	90	90	90	100	100	90	90	100	100	90	100	100	100	100	100	90	90	90	100	100	100	100	
15	100	100	120	e	e	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
16	100	90	90	100	100	90	90	100	110	c	c	100	110	c	c	100	100	c	c	c	c	100	120	
17	100	100	e	e	e	e	e	c	100	100	100	100	100	100	100	100	b	c	90	c	c	c	c	
18	c	100	e	120	e	e	e	e	e	e	e	e	e	e	e	e	100	110	c	c	c	c	c	
19	100	100	100	100	100	90	90	90	100	110	90	90	90	90	90	90	90	100	c	c	c	c	c	
20	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	g	c	c	110	c	c	
21	e	100	100	100	90	100	100	e	100	100	g	c	g	g	g	g	e	e	e	e	100	100	100	
22	100	90	100	100	100	e	e	e	b	b	c	c	c	c	c	c	b	e	e	90	100	90	100	
23	90	90	90	90	100	100	c	c	c	c	c	c	c	c	c	c	110	110	100	100	e	c	110	
24	c	100	110	100	e	e	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
25	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
29	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
30	90	100	110	110	80	100	90	b	90	100	100	100	100	100	100	100	g	g	g	g	100	110	100	
31	100	90	90	90	110	e	e	e	f	f	100	100	110	g	g	g	g	g	g	g	100	100	90	
Median No.	100	100	95	100	100	100	90	100	100	100	100	100	100	100	100	100	110	100	100	95	*	100	100	100
No.	14	16	14	14	11	11	9	6	9	6	9	6	5	5	5	5	6	5	6	5	10	13	11	13

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 50° E.M.T.

MACQUARIE ISLAND h'Es, JULY 1950

HOURLY VALUES OF (M 3000)F1 OBSERVED DURING JULY 1950 AT MACQUARIE ISLAND

Hour Day	10	11	12	13	14
1	c	c	c	c	c
2	q	q	q	c	c
3	q	q	q	c	c
4	c	c	c	c	c
5	c	c	c	c	c
6	c	c	c	c	c
7	c	c	c	c	c
8	c	c	c	c	c
9	c	c	c	c	c
10	c	c	c	c	c
11	c	c	c	c	c
12	q	3.5	c	b	c
13	q	q	c	1	1
14	c	q	1	1	q
15	c	c	c	c	c
16	q	q	c	q	q
17	q	q	q	q	q
18	c	c	q	q	q
19	q	q	q	q	c
20	c	c	q	q	c
21	q	q	c	q	q
22	c	c	c	q	q
23	c	c	q	q	q
24	c	c	c	c	c
25	c	c	c	c	c
26	c	c	c	c	c
27	c	c	c	c	c
28	c	c	c	c	c
29	c	c	c	c	c
30	q	q	q	1	q
31	q	q	q	q	q
Median No.	*				

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND (M 3000) F1, JULY 1950

HOURLY VALUES OF  $f^{\circ}\text{F2}$  OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	12	13	14	15	16	17	18	19	20	21	22	23
1	6.6	6.3	7.2	6.6	c	c	c	c	c	c	c	2.6f
2	c	c	c	c	c	c	c	c	c	c	c	c
3	c	c	7.0	b	6.3	3.7	2.3f	c	c	3.6f	b	b
4	5.6	5.8	6.1	6.4	c	(3.0f)	2.9f	c	c	c	2.5f	2.4
5	5.6	6.1	6.6	c	6.0	6.5	5.4	c	3.5f	3.5f	2.5f	2.3f
6	c	7.4	b	c	b	b	5.5	c	4.0f	3.4f	3.2f	2.5f
7	c	c	c	c	c	c	c	c	c	c	c	c
8	c	c	c	c	b	b	c	c	b	c	b	c
9	c	4.4	4.4	4.5	3.2f	f	b	c	b	b	b	b
10	c	c	5.5	5.4	4.0f	3.5	f	3.1f	f	c	3.5f	c
11	c	5.5	5.5	c	5.0f	c	3.6f	4.0f	c	b	b	b
12	c	c	c	c	c	c	c	c	c	c	c	c
13	c	c	c	c	5.6f	b	4.0f	c	c	2.9f	f	c
14	c	c	c	c	c	c	c	c	c	3.3f	f	c
15	5.7	6.0	6.5	c	5.6	5.6f	4.5f	4.0f	4.5f	4.1f	3.2f	4.0f
16	6.6	6.7	6.7f	c	c	c	c	c	b	b	b	b
17	c	c	c	c	c	c	c	c	4.0	3.7	3.4	c
18	7.2	7.0j	7.5	8.0	7.2	7.0	6.0f	4.5f	2.7f	c	c	c
19	6.0	5.8	4.3	3.6	b	b	b	b	c	c	c	c
20	4.4	g	4.2	f	c	b	c	b	c	b	b	b
21	c	c	c	c	c	c	c	c	c	c	c	c
22	c	c	c	c	c	c	c	c	c	c	c	c
23	c	c	c	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c	b	b	b
25	6.0f	b	b	b	c	b	c	c	c	c	b	b
26	5.8	6.0	6.0	6.3	5.3f	c	4.9	c	c	c	c	c
27	c	c	c	c	c	c	c	c	c	c	c	c
28	c	c	c	c	c	c	c	c	c	c	c	c
29	c	c	c	c	c	c	c	c	c	c	c	c
30	c	c	c	c	c	c	c	c	c	2.6	2.1	1.9
31	5.8	6.4	6.0	6.4	6.0	5.5f	4.5f	c	3.2f	2.6f	2.1f	3.5
Median No.	5.8 11	6.0 13	6.0 14	(6.3) 9	(5.6) 9	(4.5f) 7	(4.0f) 5	(3.4) 8	(3.0f) 7	(2.8) 8	(2.6f) 8	

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND f<sup>o</sup>F2, AUGUST 1950 23.

HOURLY VALUES OF  $f^{\circ}\text{E}$  OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	08	09	10	11	12	13	14	15	16
1	(1.7)	(2.3)	a	a	(2.7)	2.7	b	2.3	c
2	c	c	c	c	c	c	c	c	c
3	c	c	c	c	c	c	b	b	b
4	1.9	2.2	b	b	2.6	2.6	b	b	c
5	1.8	2.4	2.7	3.0	(3.0)	2.8	2.4	c	1.8
6	a	2.4f	2.5f	2.7	c	2.7	b	c	b
7	1.8f	2.1	2.6	2.7	c	c	c	c	c
8	c	c	c	c	c	c	a	a	a
9	a	1.9f	b	b	2.5	c	b	b	2.0
10	b	b	b	c	c	b	b	b	b
11	b	b	b	c	c	b	2.8	c	2.2
12	a	a	a	c	c	c	c	c	c
13	2.0	2.3	2.5	2.6	c	c	c	a	b
14	c	c	c	c	c	c	c	c	c
15	b	2.4	2.5	2.7	2.8	2.8	2.7	c	b
16	1.9	2.3	2.6	a	a	a	c	c	c
17	1.9	2.3	2.6	2.8	c	c	c	c	c
18	b	2.3	2.8	2.8	2.8	2.8	2.7	2.5f	2.2
19	b	b	b	b	2.9	a	b	a	a
20	a	a	a	2.8	2.7	2.4	2.1	a	c
21	c	c	c	c	c	c	c	c	c
22	c	c	c	c	c	c	c	c	c
23	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c
25	b	b	b	b	b	b	b	b	b
26	b	b	a	a	a	2.7	2.5	a	2.0
27	c	c	c	c	c	c	c	c	c
28	c	c	c	c	c	c	c	c	c
29	c	c	c	c	c	c	c	c	c
30	c	c	c	c	c	c	c	c	c
31	c	c	c	c	2.9	2.8	2.6	2.3	2.2
Median No.	1.9 7	2.3 11	2.6 8	2.7 9	2.8 8	2.7 9	2.6 8	*	2.1 6

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND f°E, AUGUST 1950

HOURLY VALUES OF h'F2 OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	260	300	300	b	310	220	250	230	210	200	200	210	200	220	200	c	c	c	c	c	c	c	250
2	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
3	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
4	b	c	340	c	c	b	250	230	220	210	250	260	240	250	210	c	230	260	250	c	c	c	c	b
5	300	f	b	b	300	350	b	250	200	200	230	220	200	190	190	c	200	190	200	c	300	240	(250)	280
6	260	300	290	a	f	b	300	240	210	190	200	220	c	230	b	c	b	b	240	c	240	300	260	260
7	300	320	c	330	260	250	b	230	200	190	200	190	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	f	b	b	b	c	b	c	c	
9	b	b	b	b	b	360	b	350	200	220	b	g	c	320	250	300	240	f	b	c	c	b	b	b
10	f	c	b	b	b	b	b	b	b	b	220	240	b	c	c	350	300	250	b	f	270	f	c	300
11	b	b	b	b	b	f	b	b	240	210	b	c	300	300	c	240	c	250	260	c	b	b	b	
12	b	b	b	c	c	b	310	250	250	230	200	c	c	c	c	c	c	c	c	c	c	c	c	
13	c	c	c	c	c	c	270	200	260	210	200	260	c	c	c	c	270	b	310	c	c	240	f	c
14	260	240	230	250	b	310	c	c	c	c	c	c	c	c	c	c	c	c	c	c	250	f	c	
15	250	250	250	230	270	260	b	240	230	210	200	230	230	210	210	c	210	230	290	280	300	310	400	b
16	b	b	b	250	230	210	230	240	210	270	240	250	240	240	c	c	c	c	c	c	c	b	b	
17	b	b	300	250	250	260	250	230	210	210	220	250	c	c	c	c	c	c	c	c	230	230	230	
18	250	240	230	250	250	250	270	240	210	200	240	230	220	220	230	c	210	210	190	210	250	c	c	c
19	c	c	c	c	c	300	b	b	350	b	350	b	350	310	300	360	b	b	b	b	c	c	c	c
20	b	b	b	b	b	b	b	300	260	270	250	450	350	350	g	260	f	c	b	c	b	c	b	b
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
22	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
23	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b	b	
25	b	b	300	b	300	b	b	b	b	b	b	b	b	350	350	b	b	b	b	c	c	c	b	
26	b	c	c	c	c	b	b	b	b	250	230	260	250	230	200	230	210	c	210	c	c	c	c	
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
29	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	250	360	
31	b	b	b	b	a	c	c	c	c	c	c	c	c	c	c	270	280	270	250	230	260	310	310	
Median No.	(260)	(255)	(295)	(250)	(270)	260	(260)	245	210	210	225	250	250	240	250	(245)	(250)	(260)	(260)	(260)	(270)	270	270	310
No.	7	6	8	7	9	10	7	14	13	16	15	11	13	13	8	9	6	9	5	8	7	8	7	7

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

27.

MACQUARIE ISLAND

h'F2, AUGUST 1950

HOURLY VALUES OF  $\text{h}'F1$  OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	10	11	12	13	14	15
1	q	q	q	q	200	q
2	c	c	c	c	c	c
3	c	c	c	c	200	b
4	b	210	190	190	200	210
5	200	190	q	q	q	c
6	q	180	c	180	b	c
7	q	q	c	c	c	c
8	c	c	c	c	f	f
9	b	190	c	190	170	220
10	210	b	c	c	190	250
11	q	b	c	180	200	c
12	q	c	c	c	c	c
13	190	180	c	c	c	230
14	c	c	c	c	c	c
15	q	q	160	170	200	c
16	190	170	200	200	190	c
17	180	180	c	c	c	c
18	210	190	190	180	180	180
19	210	210	220	b	b	a
20	q	210	210	240	210	f
21	c	c	c	c	c	c
22	c	c	c	c	c	c
23	c	c	c	c	c	c
24	c	c	c	c	b	b
25	b	240	b	b	b	b
26	q	200	200	200	q	q
27	c	c	c	c	c	c
28	c	c	c	c	c	c
29	c	c	c	c	c	c
30	c	c	c	c	190	180
31	c	c	c	c	190	200
Median No.	200	190	195	190	200	215
	7	12	8	10	11	6

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 15° 5° E.M.T.

MACQUARIE ISLAND h'F1, AUGUST 1950

HOURLY VALUES OF  $\text{h}^*\text{ES}$  OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	c	130	100	90	90	90	90	90	100	g	90	80	110	100	b	g	c	c	c	c	c	c	c	100
2	c	100	c	c	c	c	c	c	c	c	c	c	c	c	b	b	130	110	c	c	c	c	c	c
3	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b	b	c	c	c	c	c	c	c	100
4	b	c	100	c	c	c	c	c	c	c	c	c	b	b	b	b	c	c	c	c	c	c	c	110
5	c	100	100	100	100	100	100	100	100	100	g	100	100	100	g	120	c	100	e	e	c	c	c	100
6	e	100	100	100	100	100	100	100	100	100	g	110	c	c	b	b	b	b	b	b	c	c	100	
7	100	100	c	110	100	100	b	100	g	g	g	c	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	100	100	110	100	c	c	c	c
9	90	90	90	90	100	100	100	100	100	100	100	100	100	b	g	g	100	90	c	c	90	b	80	c
10	90	c	90	90	b	c	b	b	b	b	b	b	b	c	c	b	b	c	100	90	c	90	c	90
11	80	80	80	80	80	80	b	b	b	b	b	b	c	b	g	c	g	100	90	c	b	b	b	
12	80	80	b	c	80	110	100	90	90	100	c	c	c	c	c	c	c	c	c	c	c	c	c	
13	c	c	c	c	100	100	100	100	g	g	g	g	c	c	c	c	100	b	c	c	c	110	90	c
14	90	90	140	100	b	100	c	c	c	c	c	c	c	c	c	c	c	c	c	c	100	100	c	90
15	90	90	90	e	90	90	100	90	100	b	90	110	g	g	g	c	b	100	b	100	90	90	100	90
16	b	b	90	90	100	e	e	e	90	g	100	100	100	100	c	c	c	c	c	c	c	c	c	90
17	90	90	90	100	e	e	e	100	100	100	90	100	c	c	c	c	c	c	c	c	e	e	e	
18	90	90	90	e	e	e	b	b	b	g	g	100	g	100	g	100	100	100	100	100	c	c	c	
19	c	c	c	c	100	100	100	100	100	b	b	b	b	b	b	b	b	100	100	100	100	100	100	
20	100	100	100	100	100	100	b	b	b	100	100	100	100	100	110	g	100	100	c	100	100	100	100	100
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
22	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
23	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
25	100	100	100	100	100	100	100	100	100	b	b	b	b	b	b	b	b	b	b	100	c	c	100	
26	100	c	c	c	c	c	c	c	c	c	c	c	b	b	100	100	g	100	100	c	c	c	c	
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
29	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	110	
31	100	100	110	150	100	100	c	c	c	c	c	c	c	c	c	c	g	100	110	g	100	110	130	110
Median No.	90 15	95 14	100 15	100 13	100 13	100 14	100 11	100 12	100 8	100 5	100 6	100 6	* 7	* 7	100 7	* 7	100 7	100 9	100 5	100 5	100 6	100 13	100 11	100 14

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T. Time used: 157° 5° E.M.T.

31.

MACQUARIE ISLAND h\*Es, AUGUST 1950

## HOURLY VALUES OF (M 3000)F1 OBSERVED DURING AUGUST 1950 AT MACQUARIE ISLAND

Hour Day	10	11	12	13	14	15
1	q	q	q	q	1	q
2	c	c	c	c	c	c
3	c	c	c	c	b	b
4	b	1	1	1	1	1
5	1	1	q	q	1	6
6	q	1	c	1	b	c
7	q	q	c	c	c	c
8	c	c	c	c	f	f
9	b	3.8	c	c	1	3.5
10	1	b	c	4.1	4.1	3.7
11	q	b	c	3.7	3.8	c
12	q	c	c	c	c	c
13	1	3.8	c	c	c	3.5
14	c	c	c	c	c	c
15	q	q	1	1	1	c
16	1	1	1	1	1	c
17	1	1	c	c	c	c
18	1	3.6	3.6	3.7	1	1
19	3.6	3.7	3.7	3.9	b	a
20	q	3.7	3.7	3.4	3.6	f
21	c	c	c	c	c	c
22	c	c	c	c	c	c
23	c	c	c	c	c	c
24	c	c	c	c	c	c
25	b	3.2	b	b	b	b
26	q	3.8	1	4.0	q	q
27	c	c	c	c	c	c
28	c	c	c	c	c	c
29	c	c	c	c	c	c
30	c	c	c	c	c	c
31	c	c	3.6	3.5	3.8	4.0
Median No.	*	3.8	*	3.7	3.8	*
	6	6	5	5	5	*

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° E.M.T. (M 3000)F1, AUGUST 1950

MACQUARIE ISLAND (M 3000)F1, AUGUST 1950

33.

HOURLY VALUES OF  $\text{f}^{\circ}\text{F2}$  OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Hour Day	12	13	14	15	16	17	18	19	20	21	22	23
1	6.0	6.5	6.5	c	7.0	c	5.7	c	3.2f	c	c	c
2	c	c	c	c	c	c	c	c	c	c	c	c
3	c	c	c	c	c	c	c	c	c	c	c	c
4	c	c	c	c	c	b	b	b	b	b	b	b
5	b	b	5.4	5.4	a	b	c	c	c	b	b	b
6	c	c	c	c	c	c	c	c	c	c	c	c
7	c	c	c	c	c	c	c	c	c	c	c	c
8	4.5	5.0	5.0	4.7	b	c	c	c	b	b	b	b
9	5.0	b	5.7	5.2	b	4.4	c	3.5	b	b	c	c
10	6.0	6.8	7.1	5.7	5.8f	5.4	5.2	4.6	3.6	3.6f	3.6f	b
11	c	c	b	c	b	c	b	4.5	b	b	3.4	c
12	5.4	6.0	6.1	5.8	5.9	6.3	4.8	c	b	b	(3.5f)	(3.5f)
13	6.2	6.5	6.4f	c	c	5.8	6.0	5.8	3.4f	3.1f	c	c
14	c	5.4	5.4	5.3	5.0	5.0	4.7	[4.6]	4.3	3.2	2.5	2.5
15	c	6.4	6.2	6.1	c	6.3	c	c	4.6	c	3.6f	3.6f
16	7.1	6.9	6.9	7.0	7.3	6.2	[5.5]	5.1f	(3.3f)	3.4	c	c
17	5.8	6.0	6.2	c	c	5.5	b	c	b	4.4	b	b
18	c	c	5.9f	5.4	5.2	a	a	b	b	c	b	b
19	b	b	b	5.7	5.6	5.5f	b	c	b	b	b	b
20	b	b	b	5.9	5.6	4.5	5.6f	5.2	[4.4]	4.2	b	b
21	5.5	5.7	5.7	b	5.8f	5.9	4.9f	c	5.7f	3.6f	3.0f	3.0f
22	c	c	c	c	c	6.6	6.6	c	c	c	4.6	4.6
23	[6.3]	6.5	6.7	6.6	c	(5.2f)	c	c	4.5	4.6	c	4.0f
24	c	c	c	4.4	5.5f	c	5.1	c	4.4f	b	b	c
25	c	c	c	c	c	4.8	b	b	b	b	b	b
26	c	c	c	c	c	c	c	c	c	c	c	c
27	b	7.0	6.5	6.8f	6.4	5.8	c	c	b	b	b	4.5f
28	5.5	5.6	5.6	5.6	5.7	5.5	5.4	[5.0]	[4.0]	3.6	b	b
29	6.0	6.0	6.3	6.4	6.2	6.1	6.3	c	c	c	c	c
30	6.5	6.6	6.8	6.9	6.6	[6.3]	c	5.1	b	f	b	5.0f
Median No.	6.0	6.4	6.2	5.6	5.8	5.2	(5.0)	4.2	(3.6)	(3.3f)	(3.8f)	(3.8f)
	13	15	20	17	15	16	13	8	12	7	6	8

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 50 E.M.T.

MACQUARIE ISLAND f<sup>o</sup>F2, SEPTEMBER 1950

HOURLY VALUES OF  $f^{\circ}\text{E}$  OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Day	Hour	06	07	08	09	10	11	12	13	14	15	16	17
1	e	2.0	2.3	2.5	2.8	3.0	3.0	2.9	2.7	c	2.2	c	c
2	c	c	c	c	c	c	c	c	c	c	c	c	c
3	c	c	c	c	c	c	c	c	c	c	c	c	c
4	c	c	c	c	c	c	c	c	c	c	c	c	c
5	b	b	a	2.6	b	b	b	b	b	3.2	a	a	a
6	c	c	c	c	c	c	c	c	c	c	c	c	c
7	c	c	c	c	c	c	c	c	c	c	c	c	c
8	e	b	b	b	b	b	b	b	b	b	b	b	c
9	b	b	c	c	c	c	c	b	b	b	b	b	b
10	c	c	c	c	c	c	c	3.0	2.9	b	b	b	b
11	b	b	b	b	2.9	c	c	c	c	b	c	a	a
12	b	b	2.3	2.8	2.8	(3.0)	3.1	(3.1)	a	b	b	b	b
13	b	a	2.2	2.6	2.8	c	c	2.9	2.9	a	c	c	e
14	b	b	b	b	a	c	c	3.1	3.0	2.6	2.4	b	b
15	e	b	b	b	b	a	c	c	c	2.8	c	b	b
16	e	a	a	a	2.9	3.0	a	3.0	3.0	a	a	a	e
17	b	b	2.8	2.9	3.0	3.2	b	a	2.8	c	c	a	a
18	b	b	b	b	b	c	c	c	b	(2.8)	2.5	a	a
19	b	b	2.8	2.8	3.0	c	c	b	b	2.8	c	2.5	2.5
20	b	b	b	b	b	b	b	b	b	a	b	b	c
21	b	b	b	3.0	3.0	3.2	a	3.0	b	b	b	a	a
22	c	c	c	c	c	3.3	c	c	c	c	c	c	2.1
23	a	2.2	2.4	2.9	3.0	3.2	c	3.2	a	a	a	2.3	c
24	a	b	b	b	b	b	c	c	c	c	b	c	c
25	b	b	b	b	b	c	c	c	c	c	3.0	b	c
26	b	b	b	b	c	c	c	c	c	c	c	c	c
27	e	b	b	2.8	b	3.1	b	3.1	b	b	b	b	b
28	b	b	(2.7)	(2.8)	(2.9)	(2.9)	3.0	2.9	2.9	2.6	2.4	1.7	1.7
29	1.8	2.4	2.7	2.7	2.9	3.1	3.1	3.1	2.9	2.7	2.3	2.2	2.2
30	1.7h	2.5	2.7	2.7	2.9	3.1	3.1	3.1	2.9	2.8	2.3	c	c
Median No.	e	*	2.7	2.8	3.0	3.1	3.0	3.1	2.9	2.8	2.3	1.9	6
	7	9	12	11	11	6	13	8	9	7			

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5 E.M.T.

f<sup>°</sup>E, SEPTEMBER 1950

HOURLY VALUES OF  $h^*F2$  OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Day	370	350	350	350	b	320	240	250	200	280	250	300	260	250	230	c	200	c	250	c	c	c	c	
1	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
2	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
3	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
4	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b	b	b	b	b	b		
5	b	b	b	b	b	b	b	b	270	380	b	400	b	b	270	340	a	a	b	c	c	b	b	
6	b	b	b	b	b	b	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
8	b	b	260	250	260	260	240	b	360	b	300	350	b	350	370	b	c	c	c	b	b	b	b	
9	c	b	b	b	b	b	b	b	c	c	b	350	b	270	260	b	270	c	360	310	b	400	c	
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	260	230	230	240	260	260	b	
11	b	b	b	b	b	300	240	260	1	300	c	c	c	c	c	b	250	b	b	b	b	320	c	
12	330	c	c	350	300	b	230	270	280	300	340	350	260	270	250	240	230	310	c	b	c	b	310	
13	b	b	280	260	250	240	220	220	250	240	270	290	260	240	270	c	210	220	230	240	270	270	c	
14	300	300	300	300	b	280	b	b	350	c	c	c	320	330	300	280	250	230	240	230	240	260	270	
15	300	300	350	300	250	b	250	210	220	g	230	c	c	c	c	250	260	250	c	240	c	250		
16	260	270	270	(260)	(250)	(250)	210	210	200	240	260	270	250	250	280	240	240	210	[220]	220	240	260	c	
17	b	b	b	b	280	250	250	220	220	230	230	300	300	300	270	300	e	a	b	c	b	340	b	
18	b	b	b	b	320	b	b	b	b	b	c	c	c	c	320f	350	310	a	a	b	b	b		
19	b	b	b	b	b	b	b	240	230	240	290	530	c	b	b	300	300	c	250	b	b	b		
20	b	350	b	270	c	c	c	240	230	310	b	400	330	b	b	300	300	400	300	310	270	350		
21	b	b	b	b	b	b	b	b	320	330	350	350	320	350	320	b	250	240	300	c	220	260		
22	260	300	b	b	c	c	c	c	c	c	300	c	c	c	c	210	c	c	c	c	c	270		
23	290	330	300	270	250	240	220	200	230	280	260	[270]	260	260	250	c	250	c	c	260	230	c	320	
24	b	b	b	b	b	300	260	260	b	b	350	350	c	c	c	c	500	360	c	250	350	b	b	
25	c	c	b	b	b	b	b	b	260	b	b	c	c	c	c	c	c	c	c	c	c	c		
26	b	b	b	b	b	b	b	b	b	b	b	b	b	b	c	c	c	c	c	c	c	c		
27	b	b	250	300	300	250	260	b	270	260	300	300	260	280	250	240	230	c	c	b	b	300		
28	300	b	b	270	300	260	250	230	300	280	300	300	320	300	290	260	250	230	c	c	250	b	b	
29	b	280	250	250	250	250	220	250	270	300	290	260	250	260	280	250	250	240	240	c	c	c	c	
30	c	c	270	290	290	230	210	260	250	260	280	270	260	260	260	250	240	240	c	250	b	f	270	
Median	(300)	(280)	270	265	250	240	230	255	280	300	300	260	280	260	250	240	240	(240)	(240)	(260)	(265)	(270)		
No.	8	8	9	12	12	12	15	16	16	16	16	16	16	16	16	17	17	15	15	15	13	7	11	

Sweep: 1.0 - 13.0 Mc/s in 1m 55s Time used: 157.50 E.M.T.

MACQUARIE ISLAND h\*F2, SEPTEMBER 1950

HOURLY VALUES OF  $\text{h}^*\text{F}_1$  OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Hour Day	07	08	09	10	11	12	13	14	15	16
1	q	q	200	200	180	170	180	170	c	q
2	c	c	c	c	c	c	c	c	c	c
3	c	c	c	c	c	c	c	c	c	c
4	c	c	c	c	c	c	c	c	c	c
5	b	q	210	b	210	b	b	b	b	a
6	c	c	c	c	c	c	c	c	c	c
7	c	c	c	c	c	c	c	c	c	c
8	q	b	b	b	b	180	200	200	b	b
9	b	c	c	c	b	200	b	210	200	b
10	c	c	c	c	c	200	200	230	200	q
11	q	230	200	200	c	c	c	c	b	c
12	q	210	200	180	200	200	180	180	200	q
13	q	210	190	190	190	190	190	190	c	c
14	b	b	210	c	c	c	c	200	200	230
15	q	q	200	200	c	c	c	200	190	c
16	q	q	210	210	200	210	210	200	200	q
17	q	220	210	200	210	200	200	210	200	c
18	b	b	b	c	c	c	c	c	230	230
19	q	210	240	200	c	c	b	200	200	c
20	q	b	b	200	190	b	b	200	b	210
21	b	220	200	200	200	200	200	200	b	q
22	c	c	c	c	200	c	c	c	c	c
23	q	180	170	190	190	190	190	190	180	200
24	q	b	b	240	b	c	c	c	c	b
25	q	b	b	200	c	c	c	c	190	b
26	b	b	b	c	c	c	c	c	c	c
27	b	210	190	190	b	160	190	220	200	200
28	q	200	200	200	c	200	200	200	200	210
29	220	c	200	190	190	180	180	180	200	200
30	210	c	200	170	180	200	170	170	200	210
Median	*	210	200	195	200	200	200	200	200	210
No.	11	16	17	14	13	16	18	18	14	8

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND  $\text{h}^*\text{F}_1$ , SEPTEMBER 1950

## HOURLY VALUES OF H'ES OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Day																								
1	100	110	100	100	100	100	e	g	g	110	g	g	g	g	c	c	c	c	c	c	c	c	c	
2	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
3	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
4	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
5	100	100	b	90	100	b	100	100	g	b	b	b	b	110	150	100	100	100	c	c	c	100	100	
6	b	100	b	c	b	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
8	b	b	b	120	e	e	e	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
9	c	c	b	b	b	b	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
11	100	100	b	b	100	b	b	b	g	110	b	b	b	b	b	b	b	b	110	c	100	100	c	
12	110	c	c	100	e	e	e	g	100	g	g	g	g	110	100	c	c	c	c	c	c	c	c	
13	100	100	e	e	100	b	100	b	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
14	-100	100	e	e	100	b	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
15	100	e	e	e	100	b	e	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
16	100	110	e	e	e	e	e	100	100	100	100	100	100	100	g	g	100	100	g	100	100	100	c	
17	b	100	b	100	o	o	e	b	b	g	100	100	b	100										
18	100	100	b	100	100	b	b	b	b	b	c	c	c	c	b	b	b	b	b	b	b	b	b	
19	b	b	100	110	100	b	b	b	b	g	g	g	g	c	b	b	b	b	b	b	b	b	b	
20	b	100	100	c	c	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
21	b	b	100	100	b	100	100	b	b	g	g	100	100	g	100									
22	b	b	100	100	b	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
23	110	100	100	100	100	e	100	g	100	g	100	g	100	100	100	100	100	100	100	100	100	100	100	
24	b	100	100	100	100	b	100	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
25	c	c	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
26	b	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	
27	b	b	100	e	b	e	e	b	b	g	b	b	b	b	b	b	b	b	b	b	b	b	b	
28	100	b	b	e	e	e	b	b	b	g	g	g	g	g	g	g	g	g	g	g	g	g	g	
29	100	100	e	e	e	b	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	
30	c	c	100	100	b	e	e	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	
Median No.	100	100	100	100	100	13	9	5	*	*	*	*	*	*	*	*	*	*	*	*	*	100	100	100
Median No.	12	14	11	13	9	7	6	9	7	13	14	13	12											

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° E.M.T.

MACQUARIE ISLAND

## HOURLY VALUES OF (M 3000)F1 OBSERVED DURING SEPTEMBER 1950 AT MACQUARIE ISLAND

Hour Day	07	08	09	10	11	12	13	14	15	16	
1	q	1	1	3.9	1	1	4.1	c	q	c	
2	c	c	c	c	c	c	c	c	c	c	
3	c	c	c	c	c	c	c	c	c	c	
4	c	c	c	c	c	c	c	c	c	c	
5	b	(q)	3.2	b	3.7	b	b	b	a	a	
6	c	c	c	c	c	c	c	c	c	c	
7	c	c	c	c	c	c	c	c	c	c	
8	q	b	3.6	b	3.7	4.0	3.8	b	b	b	
9	b	b	c	c	b	4.0	3.7	3.7	b	b	
10	c	c	c	c	c	3.6	3.6	4.0	q	q	
11	q	4.0	1	3.7	3.6	4.0	3.8	c	b	c	
12	q	1	3.7	1	3.8	3.9	1	3.7	4.0	q	
13	q	1	3.5	c	c	c	3.6	c	c	c	
14	b	b	3.5	3.3	3.9	c	3.7	3.5	1	1	
15	q	q	3.3	3.9	c	c	3.7	4.0	3.9	c	
16	q	q	4.0	3.8	(3.7)	4.0	4.0	4.0	1	q	
17	q	1	3.5	3.7	3.6	3.6	3.5	3.7	c	c	
18	b	b	b	c	c	b	c	c	3.6	1	
19	q	4.0	3.7	3.5	c	b	b	3.8	3.8	c	
20	q	3.5	b	3.8	b	b	b	1	b	3.4	
21	b	1	3.6	3.7	3.5	3.9	3.7	3.7	b	q	
22	c	c	c	c	3.7	c	c	c	c	c	
23	q	1	3.8	3.7	3.9	[3.8]	3.7	3.7	3.8	1	1
24	q	b	3.6	b	c	c	c	c	b	b	
25	q	b	3.9	c	c	c	c	c	3.6	3.6	
26	b	b	c	c	c	c	c	c	c	c	
27	b	1	3.8	3.7	3.7	b	3.7	3.8	1	1	
28	q	3.7	3.7	3.6	3.6	3.6	3.9	3.7	3.7	1	
29	1	3.6	3.6	3.6	3.6	3.6	3.6	3.8	1	1	
30	1	3.8	3.8	3.9	3.6	4.0	3.7	3.8	1	1	
Median No.	3.7	3.6	3.7	3.7	3.8	3.8	3.7	3.7	3.8	*	
	5	14	16	14	11	14	17	17	10		

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND (M 3000) F1, SEPTEMBER 1950

HOURLY VALUES OF  $f^oF2$  OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	12	13	14	15	16	17	18	19	20	21	22	23
1	c	c	c	c	c	b	c	c	b	b	b	b
2	5.0f	5.2f	5.7f	5.5	(6.0f)	5.1	b	b	b	b	b	(6.0f)
3	5.4f	5.2	6.4f	c	c	c	c	c	c	c	c	c
4	b	c	c	6.1f	5.6	b	b	b	b	b	b	b
5	c	4.7	b	5.9f	5.9	b	b	b	b	b	b	b
6	b	c	c	5.4	5.5	(6.0)	(5.8)	b	b	c	c	c
7	6.0	6.0f	7.0f	(7.5f)	(7.4f)	(6.5f)	(5.4f)	(4.4f)	b	b	b	b
8	4.8	5.2	b	5.0	5.1f	5.4f	5.4f	c	(3.5f)	b	b	b
9	c	c	c	c	c	c	c	c	b	b	b	(4.0f)
10	7.1	7.1	7.1	6.8	c	c	c	c	c	c	c	c
11	6.2	6.5	6.5	6.6	6.6	6.7	6.3	[6.8]	6.2	5.6	4.6	4.2
12	[5.7]	c	c	c	7.0f	7.2f	7.1f	[6.0f]	6.0f	[4.5f]	b	b
13	6.4	6.2	6.6	6.5	6.5	6.5	6.5f	b	5.5	5.8f	5.0f	c
14	c	c	c	c	c	c	7.5f	[6.0f]	c	b	(2.6f)	b
15	5.5	5.5	c	b	5.2f	4.6f	5.0f	4.7f	3.6f	3.6f	c	[3.9f]
16	7.7f	8.0f	7.6f	[8.0f]	7.3f	b	5.4f	c	c	b	b	b
17	5.5	b	5.4f	5.6f	5.6	c	4.6	c	4.6f	4.6f	4.3f	b
18	6.2	6.1	6.2	6.6f	7.1	c	c	c	c	c	c	c
19	c	c	c	c	6.1	5.9	6.0	6.2f	5.5	c	5.5	4.5
20	5.9	6.5	6.8	6.8	6.7	6.9	7.1	c	c	5.0	5.0	b
21	7.0	7.0	7.0	7.1	7.0	7.4	7.1	c	c	4.6f	4.6f	4.5f
22	6.2	6.6	6.7	[6.7]	6.7	7.0	6.6	c	b	b	b	b
23	c	c	c	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	4.5f	4.5f	4.5f
27	8.0	[7.7]	7.6	7.5	8.0	7.5	7.4	c	c	c	4.0	4.5f
28	7.2	7.6	7.1	[7.1]	7.2	5.5	(5.5f)	c	b	b	b	4.5f
29	(5.4f)	c	[5.9]	6.0	(5.6f)	4.3f	c	b	b	b	b	4.8f
30	c	c	c	c	b	4.6f	c	b	b	b	b	b
31	4.8	b	6.0f	6.5	b	5.5	5.0	c	b	b	b	b
Median	6.0	6.4	6.6	6.6	6.6	6.0	6.0	(6.0f)	(5.5f)	(4.6f)	(4.6f)	(4.5f)
No.	16	16	19	20	17	19	19	9	8	8	9	9

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 50 E.M.T.

MACQUARIE ISLAND

TO F2, OCTOBER 1950

HOURLY VALUES OF  $f^{\circ}\text{E}$  OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	06.	07	08	09	10	11	12	13	14	15	16	17	18
1	c	c	c	c	c	c	b	3.1	3.0	a	b	2.7f	2.1
2	b	b	b	b	b	b	b	b	b	c	c	a	a
3	b	b	b	b	b	b	b	c	c	b	a	a	a
4	b	b	b	b	b	c	c	b	b	b	2.6	a	a
5	c	c	c	c	c	c	c	c	c	c	c	c	c
6	b	b	b	b	b	b	b	c	c	c	2.9	2.5	a
7	b	b	b	b	b	b	b	3.0	b	b	b	2.5	a
8	b	b	b	b	b	b	b	3.3	3.2	b	b	2.8	2.3
9	2.1	2.1	2.5	2.8	2.8	c	c	c	c	c	c	c	c
10	2.1	2.1	2.5	2.8	3.1	3.2	3.3	3.3	3.2	3.2	2.8	c	c
11	2.0	2.0	2.4	2.7	3.0	3.2	b	3.3	3.2	3.1	2.7	2.3	1.8
12	2.0	2.0	2.5	2.8	3.1	3.2	c	c	c	c	a	a	a
13	2.3	2.3	2.6	b	b	3.3	3.3	3.3	3.2	3.1	2.9	a	c
14	c	c	c	c	c	c	c	c	c	c	c	c	a
15	b	b	b	b	b	b	c	3.3	a	c	c	2.6	a
16	a	2.7	2.9	a	b	3.4	3.5	3.4	3.1	2.8	a	a	a
17	b	b	b	3.1	3.3	b	3.3	3.3	3.1	c	c	c	2.1
18	b	b	3.0	3.2	3.2	3.4	3.3	3.2	3.1	2.7	2.7	c	c
19	c	c	c	c	c	c	c	c	c	c	2.6	2.3	a
20	2.2	2.7	2.9	3.1	3.1	3.3	3.2	3.3	3.2	3.0	2.7	2.4	a
21	2.4	2.7	3.0	3.2	3.3	3.4	3.3	3.3	3.0	3.0	2.6	2.3	2.0
22	2.3	2.9	2.9	3.1	3.2	c	3.2	3.1	3.2	c	2.7	2.4	a
23	a	2.5	c	c	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	c	c	c	c
27	b	b	3.1	3.2	3.2	3.3	c	3.2	3.2	3.0	2.6	2.3	1.9
28	2.6	2.7	2.8	3.1	c	c	b	3.2	3.2	c	2.8	a	a
29	b	b	b	b	b	b	b	3.4	c	3.2	3.1	2.8	c
30	b	c	c	c	c	c	b	b	b	c	c	a	a
31	b	b	b	b	b	b	b	b	b	a	3.1	a	2.4
Median No.	2.2 9	2.6 11	2.9 11	3.1 13	3.2 10	3.3 11	3.3 15	3.2 12	3.0 12	3.0 11	2.7 12	2.3 14	2.0 5

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.50 E.M.T.

MACQUARIE ISLAND f°E, OCTOBER 1950

HOURLY VALUES OF  $\text{h}'\text{F2}$  OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	c	c	c	c	c	c	c	b	260	g	b	c	c	c	c	c	c	b	b	b	b	b	b		
2	b	b	b	b	b	b	b	b	260	g	b	330	400	400	400	400	320	350	210	230	b	b	b	330	
3	b	b	b	b	b	b	b	b	330	b	b	400	400	400	400	360	c	c	b	c	c	c	c	c	
4	b	b	b	b	b	b	b	b	350	360	400	b	c	c	c	350	350	b	b	b	b	b	b		
5	b	b	b	b	b	b	c	c	c	c	c	c	c	c	c	410	b	350	310	250	b	b	b	b	
6	b	b	b	b	b	b	b	b	240	200	320	330	330	310	370	300	290	300	300	b	b	350	b	b	
7	250	350	300	b	b	b	b	b	400	470	500	500	430	500	360	270	230	250	c	400	b	b	b	b	
8	b	340	b	b	b	b	b	b	350	280	240	210	200	300	c	300	c	c	c	c	b	b	b	300	
9	350	300	270	b	350	260	310	260	260	230	280	300	290	280	280	270	260	c	c	c	c	c	c	c	c
10	270	260	260	310	260	260	260	260	260	230	280	300	290	280	280	270	260	c	c	c	c	c	c	c	c
11	250	260	260	250	350	250	220	210	280	310	320	340	330	300	290	280	250	250	230	220	210	220	230	250	
12	250	250	230	250	300	240	230	200	190	350	330	350	360	c	c	350	240	220	220	220	230	230	280	b	
13	320	250	260	260	290	250	230	210	220	350	330	330	330	310	330	300	280	250	300	b	310	260	260	c	
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	260	280	c	c	
15	b	b	b	c	b	c	b	b	(680)	(600)	450	450	410	400	c	b	350	360	310	340	330	310	c	350	
16	360	350	350	b	300	250	220	200	260	290	290	260	270	280	260	260	300	b	250	c	c	c	b	b	
17	f	b	b	b	b	b	b	b	250	b	350	360	b	410	b	500	370	300	c	270	c	310	290	320	b
18	b	b	b	b	b	b	b	b	300	370	350	350	330	330	340	350	300	260	c	c	c	c	c	c	
19	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	300	230	250	230	250	290	310	
20	310	270	270	250	220	250	220	200	300	270	280	300	310	300	290	280	210	200	240	c	c	c	c	b	
21	250	250	260	300	280	230	210	210	260	270	260	260	270	260	260	250	250	200	210	200	c	c	230	300	
22	260	240	240	250	260	220	200	210	300	300	300	c	290	260	280	260	260	220	220	c	b	b	b	b	
23	b	b	b	b	b	b	b	b	250	210	c	c	c	c	c	c	c	c	c	c	c	c	c		
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
25	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	240	
27	230	240	250	250	240	210	b	210	250	250	260	250	250	250	250	250	250	230	210	c	210	c	250	230	
28	260	260	270	240	250	220	210	270	270	280	c	c	270	280	330	300	250	270	250	c	b	b	b	350	
29	b	b	b	b	b	b	b	b	250	b	440	500	470	c	360	320	320	300	c	b	b	b	b		
30	400	b	b	b	b	b	b	b	b	b	b	c	c	c	c	480	b	330	310	310	c	b	b	b	
31	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	310	250	310	b	b	b		
Median	260	260	260	250	280	240	225	210	270	315	330	330	330	315	300	300	250	250	250	240	240	240	220	220	
No.	13	13	12	10	11	11	12	17	15	18	16	16	19	16	19	21	17	18	8	8	8	8	9	9	

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.50 E.M.T.  $\text{h}'\text{F2}$ , OCTOBER 1950

HOURLY VALUES OF  $\text{h}^{\circ}\text{F1}$  OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	07	08	09	10	11	12	13	14	15	16	17
1	c	c	c	c	c	c	c	c	c	c	c
2	q	270	b	b	210	200	200	b	200	100	q
3	b	b	b	b	b	210	200	b	c	c	c
4	b	b	200	200	b	210	c	c	b	100	b
5	c	c	c	c	c	c	100	b	210	100	q
6	b	b	b	b	b	b	190	b	b	230	a
7	q	q	210	200	200	200	b	200	b	210	240
8	b	b	230	200	c	210	c	c	c	220	c
9	q	q	200	200	c	200	c	c	c	c	c
10	q	210	200	200	190	190	190	200	c	c	c
11	q	220	190	190	200	200	200	200	190	200	100
12	q	q	200	190	190	190	c	c	b	220	q
13	q	q	230	200	220	190	190	190	210	210	q
14	c	c	c	c	c	c	c	c	c	c	c
15	250	230	200	200	230	210	c	c	b	210	a
16	q	200	200	200	170	190	180	190	200	b	b
17	b	b	210	200	b	200	b	200	210	c	c
18	b	220	210	200	c	180	190	200	200	210	c
19	c	c	c	c	c	c	c	c	c	200	q
20	q	200	200	200	170	170	160	190	200	200	q
21	q	200	190	190	200	180	180	190	200	200	q
22	q	170	180	190	c	200	180	190	c	200	q
23	q	c	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	200	q
27	q	200	180	170	170	200	c	190	200	200	q
28	200	180	180	c	c	190	220	b	c	220	q
29	q	b	b	220	200	200	c	200	230	a	q
30	c	c	c	c	c	c	c	c	c	b	b
31	b	b	190	b	b	200	b	190	230	250	*
Median No.	*	200	200	200	200	200	190	190	200	200	*
	11	18	16	15	19	15	13	14	15	15	53.
											Time used: 157° E.M.T. MACQUARIE ISLAND h°F1 OCTOBER 1950

Sweep: 1.0 = 13.0 Mc/s in 1m 55s

HOURLY VALUES OF h'Es OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b			
2	100	100	100	100	100	b	b	b	b	b	b	b	b	b	b	100	100	g	110	110	100	b	b	100			
3	b	100	150	b	c	b	b	b	b	b	b	b	b	b	b	100	c	c	c	c	c	c	c	b			
4	c	b	100	100	b	b	b	b	b	b	b	b	b	b	b	c	b	110	b	110	b	100	c	b	100		
5	b	b	b	b	b	c	c	c	c	c	c	c	c	c	c	b	b	g	100	100	c	c	b	b	100		
6	b	b	100	b	c	b	b	b	b	b	b	b	b	b	c	c	c	100	100	100	100	c	b	c	c		
7	110	e	110	b	b	b	b	b	b	b	b	b	b	b	b	100	b	b	100	100	100	b	b	b	b		
8	100	100	100	100	100	b	b	b	b	b	b	b	b	b	b	100	g	110	100	110	c	100	c	c	c		
9	100	100	100	b	100	e	g	110	g	g	c	g	c	c	c	c	c	c	c	c	c	b	100	100	100		
10	140	e	e	100	e	e	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	c	c	c	c		
11	e	e	e	e	100	100	120	100	100	g	100	b	b	b	b	100	g	g	110	100	c	e	e	e	e		
12	e	e	e	e	e	e	e	110	100	100	100	100	g	g	g	c	c	c	100	100	100	100	100	100	100	100	
13	100	110	e	100	100	150	g	120	b	130	g	g	100	g	100	g	g	140	c	100	100	120	e	c	c		
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	100	110	b	c		
15	100	100	100	c	100	b	b	b	b	b	b	b	b	b	c	g	100	c	c	120	100	100	100	110	c	c	
16	100	100	100	100	100	100	100	100	110	g	100	b	110	g	g	110	120	100	100	100	c	c	c	100	b		
17	f	b	b	100	100	b	b	b	b	b	b	b	b	b	b	g	130	c	c	150	c	c	110	100	100		
18	100	b	b	b	100	b	b	b	b	b	b	b	b	b	b	g	g	g	120	c	150	130	100	100	100	100	
19	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
20	100	e	e	e	e	e	e	g	g	100	100	g	g	g	g	g	g	g	g	g	g	g	180	e	100	100	
21	e	110	e	e	e	100	100	110	100	100	g	g	g	g	g	g	100	g	g	90	g	g	c	c	150	100	
22	100	e	e	100	100	100	b	b	100	100	g	g	90	g	g	g	100	c	100	g	120	c	c	c	100	100	
23	b	100	110	100	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
25	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
27	c	c	c	e	e	100	100	110	100	100	g	g	g	g	g	g	100	g	g	90	g	g	c	c	150	100	
28	e	c	e	e	e	100	130	100	100	100	g	g	g	g	g	g	100	b	b	100	100	100	e	c	e	150	
29	b	b	100	100	110	b	b	b	b	b	b	b	b	b	b	g	c	c	100	100	c	b	100	b	100		
30	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	100	100	c	100	100	c	100	c	100		
31	100	100	b	b	b	b	b	b	b	b	b	b	b	b	b	b	100	100	100	110	g	c	b	c	110		
Median	100	100	100	100	100	100	100	110	100	100	100	100	100	100	100	*	*	*	100	100	100	100	100	100	100		
No.	13	10	11	10	10	5	10	5	6	8	5	6	8	5	8	*	*	*	100	100	100	100	100	9	9	11	14

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND h'Es, OCTOBER 1950

HOURLY VALUES OF (M 3000)F1 OBSERVED DURING OCTOBER 1950 AT MACQUARIE ISLAND

Hour Day	07	08	09	10	11	12	13	14	15	16	17
1	c	c	c	c	c	c	c	c	c	c	c
2	q	3.3	b	b	3.8	3.6	3.6	3.6	b	3.4	q
3	b	b	b	b	b	c	b	c	c	c	c
4	b	b	b	3.5	3.6	3.6	c	c	b	b	b
5	c	c	c	c	c	c	c	c	b	b	q
6	b	b	b	b	b	b	c	c	3.7f	3.5	a.
7	q	q	q	3.5	3.7	3.6	3.6	b	b	3.5	3.5
8	b	b	b	3.4	3.8	3.6	3.6	b	3.5	3.4	1
9	q	q	q	3.6	3.6	3.8	c	c	c	c	c
10	q	3.6	3.7	3.6	3.6	3.8	3.8	3.6	3.8	4.0	c
11	q	1	1	3.5	3.7	3.8	3.6	3.6	3.5	3.7	1
12	q	q	q	3.5	3.5	3.8	3.7	c	c	b	q
13	q	q	q	3.6	3.5	3.5	3.7	3.5	3.6	1	q
14	c	c	c	c	c	c	c	c	c	c	c
15	c	c	c	3.4	3.6	3.6	3.5	3.6	c	3.8	a.
16	q	4.0	3.7	3.8	3.5	3.8	3.8	3.6	3.7	b	b
17	b	b	3.5	3.6	3.6	b	3.6	b	3.5	c	c
18	b	3.6	3.3	3.5	3.6	3.6	3.6	3.6	3.5	3.5	c
19	c	c	c	c	c	c	c	c	c	1	q
20	q	3.6	3.8	3.7	3.7	3.7	3.7	3.5	3.6	3.6	q
21	q	3.6	3.6	5.0	3.6	3.9	3.8	3.7	3.5	3.6	1
22	q	3.6	3.6	3.6	c	3.6	3.6	3.7	c	1	q
23	q	c	c	c	c	c	c	c	c	c	c
24	c	c	c	c	c	c	c	c	c	c	c
25	c	c	c	c	c	c	c	c	c	c	c
26	c	c	c	c	c	c	c	c	c	c	c
27	q	4.0	3.9	4.0	3.9	3.7	c	3.8	3.9	4.0	q
28	3.6	3.6	4.0	c	c	4.2	3.8	b	c	3.9	q
29	q	b	b	3.6	3.5f	3.6f	c	3.2f	3.2	a.	q
30	c	c	c	c	c	c	c	c	c	c	b
31	b	b	3.6	b	b	3.8	b	3.7	3.4	b	3.5
Median No.	*	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	*
	9	18	16	15	18	18	14	13	13	14	9

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5°E.M.T.

MACQUARIE ISLAND (M 3000) F1, OCTOBER 1950

HOURLY VALUES OF  $f_0F2$  OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	12	13	14	15	16	17	18	19	20	21	22	23
1	c	c	c	6.4f	6.8	7.0	5.5	c	b	b	b	b
2	7.0	6.5	[7.0]	c	6.6	6.5f	c	b	b	b	b	b
3	c	c	c	c	c	c	c	c	c	c	c	c
4	c	5.8	6.0	c	c	c	c	c	c	c	c	4.6f
5	[5.6]	5.2f	5.2f	5.0f	5.2	5.7f	5.9f	c	c	c	c	b
6	6.5	6.5	6.4	6.4	6.5	6.5f	6.5	c	(6.5f)	(6.5f)	(5.8f)	b
7	7.2	c	c	7.0	7.0	c	c	c	c	c	c	c
8	c	8.0	8.0	8.0	8.0	c	c	c	7.3	5.7	c	5.2f
9	5.8	6.0	6.0	6.0	6.2	c	c	c	4.9f	4.5f	4.1f	3.6f
10	5.5f	5.7f	5.5f	6.0f	6.0f	c	c	c	b	f	b	b
11	7.0f	(7.6f)	(8.0f)	8.0f	8.0f	c	c	c	b	b	b	b
12	c	c	c	c	c	c	c	c	c	c	c	c
13	6.5	6.3	5.5	5.8	6.7	7.0	5.6f	c	b	b	b	b
14	6.5	6.2	7.0f	6.9f	7.4f	8.0f	c	b	c	5.0f	4.6f	c
15	6.1	6.1	6.5	6.6	6.5	6.4	6.3	6.2	6.1	c	c	c
16	c	c	c	c	c	c	c	c	c	c	c	c
17	c	c	c	c	c	c	c	c	c	c	c	c
18	c	c	c	c	c	c	c	c	c	c	c	c
19	c	5.9	5.9	6.1	6.3	6.4f	7.5f	c	c	4.8f	4.3f	3.6f
20	6.1f	6.2f	6.7f	6.9f	6.7f	6.8f	7.0f	c	c	5.0f	5.0f	4.0f
21	6.7	6.3	6.5	6.8	6.6	7.0	c	c	c	c	c	c
22	7.0	6.6	6.3	6.6	6.4	6.3	6.4	c	5.5	4.7f	4.3f	3.4f
23	4.9	5.1	5.1	5.2	5.1f	c	c	c	c	c	c	c
24	c	c	5.9f	5.5f	c	c	c	c	6.0f	6.0f	5.0f	5.0f
25	b	5.9f	5.9f	b	b	c	c	c	b	b	b	b
26	c	c	5.4	7.0f	6.1f	6.6f	6.0	c	b	b	b	b
27	5.4f	5.4f	5.4f	5.8f	4.8f	4.7f	4.5f	c	b	b	b	b
28	c	c	c	c	c	c	c	c	c	c	c	c
29	[5.4]	5.7	5.7	5.9	5.9	7.0	6.5	c	b	b	b	b
30	6.0	7.0	7.1	6.0	6.6f	5.8	15.6	5.4f	(4.7)	b	b	5.4f
Median No.	6.1 17	6.2 20	6.0 21	6.4 22	6.5 21	6.6f 16	6.3f 13	*	6.0f 8	4.9f 8	5.0f 7	4.6f 9

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 50' E.M.T.

MACQUARIE ISLAND f<sub>0</sub>F2, NOVEMBER 1950

HOURLY VALUES OF  $\text{FO}_E$  OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
1	b	b	b	b	b	3•2	c	c	c	a	3•1	a	a	c	c
2	b	b	3•0	3•1	3•2	3•4	b	b	b	b	b	b	a	c	a
3	a	2•9	c	c	c	c	c	c	c	c	c	c	c	c	c
4	2•2f	2•4f	2•7	3•1	3•3	3•4	c	3•3	3•2	c	c	c	c	b	c
5	a	b	b	b	3•2	3•2	b	3•4	3•4	c	c	c	c	b	c
6	b	2•5f	2•7f	a	3•2f	3•5	3•5	3•5	3•4	a	3•2	2•9	2•6f	2•5	c
7	2•0f	2•3	2•8f	3•0f	3•2	3•5	3•4	3•5	c	c	3•2	3•0	c	c	c
8	c	c	c	c	c	c	c	c	3•3	3•3	3•3	3•0	c	c	c
9	a	2•5	2•9	3•1	3•3	3•4	3•4	3•4	3•4	3•4	3•2	3•2	2•6	c	c
10	2•3	2•5	2•3	a	3•4	3•5	3•4	3•3	3•3	3•2	3•2	3•2	c	c	c
11	b	b	3•2	3•3	3•4	3•4	c	b	b	b	3•4	3•1	2•9	c	c
12	2•1f	2•6f	c	c	c	c	c	c	c	c	c	c	c	c	c
13	c	c	c	c	c	c	c	c	3•4	3•3	3•2	3•0	c	c	c
14	2•3	b	b	b	3•2	3•2	b	b	3•4	a	3•4	3•1	a	a	c
15	2•2	2•6	2•9	3•0f	3•3	3•4	3•4	3•4	3•4	3•4	3•3	3•3	2•9	2•6	2•2
16	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
17	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
18	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
19	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
20	o	c	2•8	3•0	3•3	3•4	a	3•4	3•4	3•4	3•2	3•2	a	b	a
21	a	2•7f	3•0f	b	3•4f	a	a	a	3•4	3•2	3•1	2•8	2•6	c	c
22	2•2	2•7	2•8	3•0	3•2	3•2	3•3	3•2	3•3	3•2	3•1	2•9	2•7	2•2	c
23	a	2•7f	3•0	3•2	b	b	b	b	b	b	3•4	3•2f	c	c	c
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
25	b	a	2•9	3•0	3•0	3•3	3•2	b	3•4	3•2	a	a	a	a	c
26	a	2•7	3•0	3•1	3•3	3•5	c	c	b	3•0f	3•0	2•7	a	c	c
27	a	b	b	b	3•3	b	b	b	3•3	b	3•0	a	2•7	a	c
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
29	b	b	b	b	b	b	b	b	b	b	3•3	b	2•8	2•6	c
30	b	2•7	2•8	2•9	b	b	b	b	3•4	3•3	b	3•3	b	2•8	2•4
Median No.	2•2	2•6	2•9	3•0	3•2	3•3	3•4	3•4	3•4	3•4	3•1	2•9	2•6	2•4	*
No.	8	13	15	12	14	15	11	10	14	15	18	13	10	8	

Time used: 157.50 E.M.T.

MACQUARIE ISLAND      FO<sub>E</sub>, NOVEMBER 1950

Sweep: 1•0 - 13•0 Mc/s in 1m 55s

HOURLY VALUES OF  $h^*F_2$  OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	c	c	c	c	c	b	b	b	
2	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	c	c	c	c	c	b	b	b	
3	b	b	350	270	240	240	340	340	360	360	360	360	360	360	360	c	c	c	c	c	c	c	c	
4	c	280	250	250	250	250	230	340	340	360	360	360	360	360	360	[400]	410	350	c	c	c	c	c	
5	b	c	b	b	b	b	b	b	b	b	b	b	b	b	b	b	450	450	420	360	300	240	c	
6	320	270	250	250	240	250	230	210	350	340	350	330	330	310	330	330	300	290	260	c	260	270	250	b
7	300	290	250	250	240	250	210	210	270	290	260	280	280	280	280	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	280	270	c	c	c	c	c	
9	260	250	280	280	280	280	b	210	300	380	350	400	330	400	380	350	350	310	270	c	c	230	270	c
10	c	c	290	260	260	250	230	1	340	350	360	410	370	410	400	350	300	310	c	c	c	c	250	250
11	b	b	b	b	b	b	b	b	250	250	230	430	370	350	c	340	300	300	280	260	c	c	b	
12	b	b	b	b	b	b	b	b	290	250	250	c	c	c	c	c	320	360	350	380	290	a	c	
13	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	300	350	300	290	260	c	b	
14	b	b	b	b	300	c	c	c	230	b	b	g	380	350	b	300	350	300	300	290	230	c	210	
15	300	330	b	b	b	260	220	210	350	350	300	330	340	310	300	320	300	270	210	220	230	c	c	
16	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
17	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
18	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
19	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	330	330	320	300	280	250	c	
20	250	300	c	250	240	240	220	200	300	300	240	300	290	270	270	290	270	270	260	250	220	230	c	
21	270	280	300	260	240	220	200	320	280	260	310	300	270	290	280	270	260	250	c	c	c	c	c	
22	c	c	260	250	240	260	200	310	360	300	310	300	280	280	320	280	280	260	210	c	220	230	260	
23	330	b	b	b	b	300	230	g	550	b	g	420	g	420	g	380	320	350	c	c	c	c	c	
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	200	220	c	
25	230	250	250	280	250	b	b	430	450	360	360	420	b	400	340	400	b	b	c	c	b	b	b	
26	b	b	b	b	b	b	b	250	370	400	370	410	310	320	c	c	400	300	280	260	250	c	b	
27	b	b	b	b	b	b	b	b	310	b	b	400	460	410	420	350	300	440	240	350	c	b	b	
28	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
29	b	b	b	b	b	b	b	250	270	b	b	420	420	c	380	430	340	300	280	290	c	b	b	
30	b	b	b	b	250	260	240	350	350	b	b	310	320	300	300	320	320	250	250	c	260	310	b	
Median No.	(285)(280)(260)	255	245	230	340	360	360	355	335	320	340	330	300	290	260	250	*	(230)(255)(250)(260)	8	8	8	7	9	

Swoop: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.50 E.M.T.

MACQUARIE ISLAND h°F2. NOVEMBER 1950

HOURLY VALUES OF h<sup>1</sup>F1 OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	06	07	08	09	10	11	12	13	14	15	16	17	18
1	b	b	b	b	200	c	c	c	200	200	250	a	q
2	q	230	210	200	200	c	c	c	200	200	230	q	c
3	220	c	c	c	c	c	c	c	c	c	c	c	c
4	q	200	200	200	200	190	c	c	180	c	c	c	b
5	b	b	250	200	210	210	b	210	200	200	200	220	q
6	q	100	q	200	200	200	200	200	200	190	200	200	220
7	q	q	q	200	200	180	200	200	c	200	200	c	c
8	c	c	c	c	c	c	c	c	180	190	200	c	c
9	q	100	200	190	190	190	200	200	200	200	200	c	c
10	210	100	220	200	200	200	200	200	200	200	200	c	c
11	q	10	q	230	210	200	c	b	200	200	210	c	c
12	c	c	c	c	c	c	c	c	c	c	c	c	c
13	c	c	c	c	c	c	c	c	200	200	220	a	a
14	b	b	200	200	200	180	b	200	200	200	200	b	q
15	q	200	200	200	200	200	200	190	200	200	200	q	q
16	c	c	c	c	c	c	c	c	c	c	c	c	c
17	c	c	c	c	c	c	c	c	c	c	c	c	c
18	c	c	c	c	c	c	c	c	c	c	c	c	c
19	c	c	c	c	c	c	c	c	c	c	c	c	c
20	q	100	200	200	200	180	190	200	200	200	200	210	240
21	q	200	200	200	190	190	190	190	190	190	180	200	q
22	q	200	200	200	200	200	160	200	190	190	190	200	200
23	q	230	220	200	200	b	200	210	200	210	210	200	200
24	c	c	c	c	c	c	c	c	c	c	c	c	c
25	b	200	200	200	200	200	b	200	200	200	b	b	b
26	240	220	210	200	200	c	c	c	200	200	200	q	q
27	200	b	b	b	200	200	200	190	190	190	b	q	q
28	c	c	c	c	c	c	c	c	c	c	c	q	q
29	b	b	b	b	210	190	b	190	180	190	200	220	220
30	q	220	210	200	190	190	b	190	190	200	200	200	220
Median No.	*	200	200	200	200	200	200	200	200	200	200	200	*
	12	17	16	17	17	17	14	14	20	21	21	20	9

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.5 E.M.T.

MACQUARIE ISLAND Nov. 1950

HOURLY VALUES OF h'ES OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	100	b	b	b	b	b	b	b	g	c	c	c	b	b	100	100	100	100	100	c	b	b	b		
2	b	b	b	b	b	b	b	g	110	g	c	c	b	b	100	b	130	c	100	c	100	b	b		
3	b	b	100	100	100	100	100	g	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c		
4	c	110	100	g	100	100	100	g	90	90	g	100	c	c	c	c	c	c	c	c	c	c	90		
5	100	c	110	100	100	100	100	b	b	g	130	110	b	110	100	g	110	120	c	100	c	100	100	100	
6	100	100	e	e	110	b	g	100	100	100	100	100	100	100	100	100	110	150	c	110	100	110	100	100	
7	100	100	e	e	110	g	130	100	100	110	90	100	100	g	100	g	100	100	c	100	100	c	130	130	
8	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	100	g	g	c	100	100	100	100	
9	110	150	e	e	b	100	100	100	100	100	100	100	100	100	100	100	120	110	c	110	120	100	100	100	
10	c	c	100	e	100	100	g	100	100	g	100	100	100	100	100	120	100	100	c	c	c	100	100	b	
11	b	b	100	100	b	b	140	100	g	g	c	b	b	g	120	110	c	c	c	b	b	100	100	100	
12	100	100	100	100	100	100	150	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
13	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	100	100	100	c	c	100	100	100	
14	90	90	100	e	c	c	g	b	b	100	b	b	g	g	g	100	g	100	b	110	c	100	c	e	
15	110	90	90	90	90	90	90	140	g	g	g	g	g	g	g	g	100	100	g	g	110	e	c	c	
16	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
17	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
18	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
19	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
20	e	100	100	100	100	100	100	e	c	100	g	100	g	g	g	g	g	g	g	g	100	c	150	e	100
21	110	100	100	100	100	100	100	100	g	b	100	100	100	100	100	100	100	100	c	c	c	c	c	c	
22	c	e	e	100	100	g	100	100	100	100	100	100	100	100	100	100	110	100	100	c	100	100	140	100	100
23	100	100	100	b	100	100	100	100	100	g	b	b	b	b	b	g	100	c	c	c	c	c	c	c	
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
25	120	e	110	100	100	100	b	100	100	90	g	g	g	b	b	g	100	100	100	c	c	c	c	b	
26	90	90	b	150	100	g	90	110	100	g	c	c	b	b	g	110	100	100	c	100	100	100	110	110	
27	100	100	100	b	90	b	b	b	b	g	b	b	b	b	b	g	100	g	100	c	b	100	b	b	
28	e	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
29	90	100	90	80	100	100	b	120	130	b	b	b	b	b	b	g	120	c	130	110	c	100	100	b	90
30	90	14	16	11	14	12	7	9	10	9	8	9	6	11	8	9	13	10	14	*	100	100	100	100	13
Median No.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	13

Sweep: 1.0 - 13.0 Mc/s in 1m55s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND h'ES, NOVEMBER 1950

TABLE II  
HOURLY VALUES OF (M 3000)F1 OBSERVED DURING NOVEMBER 1950 AT MACQUARIE ISLAND

Hour Day	06	07	08	09	10	11	12	13	14	15	16	17	18
1	b	b	b	b	3.5	(3.5f)	3.8f	c	c	3.7	3.7	3.5	q
2	q	3.6	3.5	c	c	3.5	c	c	c	3.8	1	q	c
3	3.5	c	c	c	c	3.6	3.7	c	c	c	c	c	c
4	q	3.6	3.5	3.6f	3.6f	3.7f	3.8	c	3.7	3.6	c	c	b
5	b	b	3.5f	b	3.6f	3.7f	b	3.6	3.7	3.6	3.5	1	q
6	q	q	q	3.5	3.5	3.6	3.5	3.6	3.7	3.6	3.6	3.6	1
7	q	q	q	3.7	3.7	3.6	3.6	3.7	c	3.8	4.0	c	c
8	c	c	c	c	c	c	c	c	3.6	1	c	c	c
9	q	3.6	3.6	3.7	3.7	3.6	3.6	3.7	3.7	3.5	3.4	1	c
10	3.4	1	3.6	3.7	3.6	3.6	3.6	3.7	3.6	3.6	3.6	c	c
11	q	q	q	3.8	3.5	3.6	c	b	3.8	3.8	3.7	3.6	c
12	c	c	c	c	c	c	c	c	c	c	c	c	c
13	c	c	c	c	c	c	c	c	3.6	3.8	3.7	3.3	a
14	b	b	3.7	3.5	3.5	3.6	b	4.0	3.7	3.6	3.6	b	q
15	q	3.4	3.5	3.5	3.6	3.8	3.7	3.8	3.9	3.5	3.6	3.9	q
16	c	c	c	c	c	c	c	c	c	c	c	c	c
17	c	c	c	c	c	c	c	c	c	c	c	c	c
18	c	c	c	c	c	c	c	c	c	c	c	c	c
19	c	c	c	c	c	c	c	c	3.9	3.8	3.6	3.5	3.8f
20	q	3.5	3.8f	3.5f	3.6f	3.7f	3.7f	3.7f	3.6f	3.6f	3.6	1	q
21	q	3.6f	3.6	3.6	3.8	3.8	3.8	3.7	3.8	3.6	3.7	1	c
22	q	3.7	3.7	3.7	3.7	4.0	3.6	3.9	3.9	3.8	3.6	3.9	q
23	q	3.6	3.5	3.5	3.8f	b	3.6	4.0	3.9	3.6	3.7	3.5	c
24	c	c	c	c	c	c	c	c	c	c	c	c	c
25	b	3.6f	3.7f	3.5f	3.8f	3.7f	b	3.9	3.8	b	b	b	b
26	3.9	3.5	3.5	3.7	3.6	3.7	c	c	3.9	3.7	1	q	q
27	4.0	b	b	b	3.8	3.8	3.8	3.7	3.9	3.7	3.6	3.3	q
28	c	c	c	c	c	c	c	c	c	c	c	c	c
29	b	b	b	b	3.7	3.8	b	4.2	3.7	3.7	3.7	3.5	3.7
30	q	3.6	3.6	b	b	4.0	4.2	4.1	4.0	3.7	3.5	3.5	1
Median No.	*	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.6	*	*
	11	17	16	17	17	17	17	17	17	20	20	17	

Sweep: 1.0 - 13.0 Mc/s in 1m 5s

Time used: 157.5° E.M.T.

MACQUARIE ISLAND (M 3000) F1, NOVEMBER 1950

HOURLY VALUES OF  $F_0 F_2$  OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour Day	12	13	14	15	16	17	18	19	20	21	22	23
1	5.8 c	5.9 c	5.8 c	6.2	6.6	6.7	5.8	5.2	5.6f	4.7f	4.7f	4.2f
2	6.1 6.1f	5.8 7.1	5.9 7.2	6.1	6.8	5.9 7.0	6.1	c	c	c	c	c
3	6.3 6.5	6.5 6.9	7.0 6.5	6.8	6.6	7.0	6.7	6.6	5.5	4.6	4.6	a
4									6.5	6.0f	6.1	5.5f
5									6.0	5.5f	4.5f	4.5f
6	6.6f	7.0	7.0	7.1	7.0f	6.5	b	b	f	b	b	b
7	c	c	c	c	c	c	c	c	c	c	c	c
8	6.1f 5.8	7.1 6.0	7.5 6.1	7.2 6.1	7.4 7.5f	7.0	7.3	7.5	b	b	b	b
9	c	c	c	c	c	c	c	c	c	c	c	f
10						6.7	6.3f	[5.6f]	b	4.4f	5.5f	b
11	7.1	7.1	7.0	7.0	7.1f	7.4f	b	7.1f	6.2f	b	6.1f	b
12	7.0	6.6	6.8	c	7.0	7.0	c	b	b	b	b	b
13	b	8.1f	7.5f	5.7	c	b	c	c	c	c	c	c
14	c	c	c	c	c	c	c	c	c	c	c	c
15	c	c	c	c	c	c	c	c	c	c	c	b
16	5.7 6.1	5.6 6.3	5.5 6.3	5.5 6.7	5.8 6.3	7.0	5.9f	c	b	b	b	4.5f
17	6.0 5.8	6.0 5.8	6.0 6.0	6.2 6.1	6.3 6.4f	6.7 6.4	6.8 7.1	c	6.0	b	5.5f	4.4f
18	5.9 5.6	5.9 5.5	6.1 5.5	6.4f 5.5	6.4 5.4	6.6 5.8	6.6 6.0	6.4 6.3	[6.5]f [5.1]	6.0f 5.5	6.0f 5.4	5.5f 4.5
19									c	4.2f	c	c
20												
21	5.7 5.7f	c 6.4	c 6.1	c 6.0	c 5.6	6.2 5.7	6.5 5.6	[6.2]	6.0	5.0	b	b
22	c	5.7	6.0f	6.6	6.1	b	c	c	6.4	5.0	6.5f	b
23	5.8 b	5.7 5.9	6.6 6.2	6.1 7.2	6.1f 6.2	b 6.2	8 6.4	b	b	b	b	b
24												
25												
26	c	5.8	6.6	7.1	c	c	c	c	b	b	b	b
27	5.9 6.2	6.5 6.0	7.0 6.0	8.0 6.4	6.2 7.0	6.1 7.7	b	b	b	b	b	b
28	6.2 6.0	5.8 6.4	6.0 6.5	6.4 6.5	7.1f 6.6	7.5 6.5	6.4 6.5	c	b	b	b	6.0f
29	6.0 6.5	6.5 6.5f	7.0 6.4	7.0 6.4	7.1f 6.7	7.5 6.6	6.4 6.6	c	5.5	4.8	5.6	6.0
30	6.5f	6.5f	6.6 6.4	6.6 6.4	6.5 6.7	6.5 6.6	6.5 6.6	[6.4]	6.3f 7.1	5.0f 6.5f	5.8f 6.5f	5.5f 6.0f
31												
Median No.	6.0 22	6.2 25	6.5 24	6.4 23	6.7 23	(6.4) 20	6.5 9	(6.4) 14	6.0 14	5.0f 5.5f	5.0f 5.5f	5.0f 5.5f

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157° 5° E.M.T.

MACQUARIE ISLAND  
F0F2, DECEMBER 1950

HOURLY VALUES OF  $^{\circ}\text{E}$  OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Day	b	a	2.8	3.1	b	3.4	3.5	3.4	a	3.2	2.9	a	2.4	1.9		
1	a	2.4	2.6	a	c	c	c	c	c	c	c	c	c	c	c	c
2	c	0	0	c	c	c	c	a	a	3.5	3.1	2.9	c	c	c	c
3	1.8	2.2	2.6	2.8	3.1	3.2	3.5	3.6	3.5	3.4	3.2	2.8	2.5	a	a	c
4	a	2.8	2.8	2.8	3.3	3.4	3.4	3.5	3.6	3.5	3.4	3.1	2.8	2.5	c	c
5																
6	a	b	a	2.9	3.2f	3.4	b	b	3.6	3.6	3.5	3.3	3.2	3.4	b	a
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
8	a	a	a	3.2	3.4	3.4	a	3.6	3.6	3.5	3.5	3.2	3.0	2.4	2.2	
9	a	2.8f	2.7	a	a	a	a	b	3.5	3.5	3.4	3.3	3.0	2.5	c	
10	2.2	2.6	2.8	3.0	3.2	3.5	3.5	3.5	c	c	c	c	2.9	a	c	c
11	2.0	2.4	2.8	3.1	3.3	3.5	a	a	3.5	3.4	3.4	3.4	3.2	2.9	2.5	a
12	2.2	2.5	2.7	3.1	3.3	3.4	3.5	3.5	b	3.6	a	a	2.9	2.4	c	
13	a	2.0	b	a	3.2	3.5	3.5	3.5	c	c	b	c	a	a	c	c
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
15	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
16	a	b	a	3.2	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.2	b	b	2.5	c
17	2.2	2.5	2.5	2.7	2.8	3.1	3.3	3.5	3.5	3.5	3.3	3.2	3.1	2.7	2.4	c
18	a	2.3	2.8	2.8	3.2	3.3	3.4	3.5	3.5	3.3	3.3	3.2	3.1	2.7	2.4	c
19	a	a	b	3.2	3.2	3.3	3.3	3.4	3.4	3.5	3.4	3.4	3.2	2.9	2.5	c
20	a	b	2.6	2.8	3.1	3.2	3.3	3.3	3.3	3.3	3.5	3.3	3.2	3.1	2.8	c
21	c	c	c	c	c	c	c	c	b	c	c	c	c	2.6	2.4	c
22	1.9	a	2.4	2.8	3.1	3.2	3.3	a	a	3.4	3.5	3.2	3.0	2.4	c	
23	a	a	b	b	a	3.2	3.1	c	a	a	a	a	a	a	a	c
24	a	c	2.5	2.7	3.1	a	3.2	a	a	3.4	b	a	a	a	a	c
25	b	b	2.8	2.8	3.1	b	b	3.5	b	b	3.4	b	3.2	3.0	2.6	c
26	a	a	b	b	b	c	c	c	b	b	3.5	3.4	c	c	c	c
27	a	b	b	b	3.5	a	a	3.5	3.5	b	3.3	b	3.2	3.2	a	a
28	a	a	a	b	b	b	b	b	3.4	3.4	3.5	3.4	3.2	a	c	c
29	a	2.3	2.8	3.0	3.2	3.2	3.5	3.5	a	3.4	3.5	3.3	3.2	2.9	2.5	c
30	1.7	2.3	2.4	c	3.3	3.4	3.4	3.5	a	3.5	3.6	3.2	3.1	2.9	2.7	c
31	a	1.6	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	*
Median	2.0	2.4	2.7	2.9	3.2	3.4	3.5	3.5	3.5	3.5	3.5	3.4	3.2	2.9	2.5	
No.	7	10	16	17	19	19	19	19	19	19	19	19	20	18	20	16

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157.50 E.M.T.

MACQUARIE ISLAND  $^{\circ}\text{E}$ , DECEMBER 1950

HOURLY VALUES OF H<sup>o</sup>F<sub>2</sub> OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Day																								
1	280	250	250	250	b	210	310	400	b	380	350	350	330	350	340	340	300	340	260	240	250	260	340	
2	b	270	250	250	220	230	250	300	320	c	c	c	e	c	c	c	c	c	c	c	c	c	c	
3	c	c	c	c	c	c	c	c	c	c	c	400	350	390	350	320	290	c	c	270	280	300	300	a
4	300	320	b	250	240	210	300	320	310	320	300	300	350	310	320	330	280	280	250	240	230	210	220	
5	b	270	300	260	270	[260]	260	300	300	280	300	(400)	330	340	300	320	310	290	[240]	250	260	250	250	
6	250	260	260	250	210	b	210	350	300	320	b	b	340	310	340	300	280	300	b	b	200	b	b	
7	b	b	b	300	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	c	c	270	310	320	350	300	300	300	300	280	200	220	230	b	b	b	
9	b	b	b	250	230	240	210	1	350	410	400	430	380	400	350	350	310	270	270	c	240	300	260	
10	270	260	250	230	230	210	290	310	340	330	350	310	c	c	c	c	c	c	c	330	300	300	300	
11	b	b	290	250	230	230	200	290	310	300	300	300	300	300	300	300	300	260	270	b	240	250	b	260
12	240	250	250	220	220	210	210	280	280	300	290	290	300	320	340	300	300	300	210	c	b	b	b	
13	b	b	220	210	210	220	b	g	g	g	550	420	b	320	380	360	c	b	c	c	c	c	c	c
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
15	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b	
16	350	300	300	230	240	b	g	560	g	370	420	370	370	330	410	420	380	300	250	c	b	b	300	
17	300	250	240	270	250	300	300	350	250	270	300	280	300	340	310	290	280	280	250	250	270	270	240	
18	250	250	(220)	230	220	200	270	350	320	320	310	290	320	320	310	290	310	300	280	230	220	240	260	
19	b	240	240	290	b	420	b	300	290	270	310	300	330	300	300	300	280	280	260	c	250	270	280	260
20	b	350	300	250	250	b	500	300	350	300	310	310	350	310	310	300	370	340	330	270	220	c	230	c
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	b	
22	260	250	250	b	220	200	190	330	290	310	310	360	340	290	300	290	270	280	260	c	200	220	230	b
23	b	b	b	b	b	b	b	b	b	b	b	g	g	g	g	g	450	340	350	b	c	b	b	
24	b	b	b	b	b	b	b	b	240	g	g	450	350	400	400	350	310	300	300	300	310	250	b	b
25	b	b	b	b	b	b	b	b	b	b	b	430	350	400	b	310	340	300	300	310	250	c	b	b
26	b	b	b	b	280	250	250	b	350	c	c	c	c	390	310	300	c	c	c	b	b	b	b	
27	b	b	b	b	280	250	250	b	320	340	360	350	400	350	350	320	270	310	280	b	b	b	350	
28	b	b	300	280	260	250	370	330	b	330	350	320	330	340	290	330	280	300	290	c	b	b	230	
29	b	260	260	250	260	250	300	280	320	310	330	300	280	330	330	320	300	300	290	260	270	260	250	
30	250	250	210	240	210	200	250	c	300	320	300	310	320	320	300	280	260	250	250	250	250	250	210	
31	a	210	350	290	300	240	310	290	330	300	300	310	330	330	320	320	300	280	270	c	240	220	250	
Median	265	255	250	250	240	230	280	325	320	310	350	330	320	335	305	300	280	255	(240)	240	250	260	260	
No.	10	16	19	20	20	21	22	22	24	23	23	24	22	22	24	23	23	20	9	14	15	12	13	

Sweep: 1.0 - 13.0 Mc/s in 1m 5s

Time used: 157° 5° E.M.T.

HOURLY VALUES OF  $\text{h}^*\text{F1}$  OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour	05	06	07	08	09	10	11	12	13	14	15	16	17	18
Day														
1	q	230	200	b	200	180	180	180	200	180	200	200	210	220
2	q	210	210	c	200	c	c	c	c	c	c	c	c	c
3	c	c	c	c	c	c	c	c	c	c	c	c	c	c
4	q	210	200	180	200	190	180	170	190	190	200	200	210	210
5	c	(210)	200	200	190	190	190	210	190	200	190	200	200	200
6	b	q	180	180	170	b	b	190	180	190	180	200	220	b
7	c	c	c	c	c	c	c	c	c	c	c	c	c	c
8	q	200	200	200	200	200	200	180	200	200	200	200	q	q
9	q	200	200	200	190	200	190	200	200	200	200	200	230	220
10	q	220	200	200	200	190	180	c	c	c	c	c	200	200
11	q	q	200	200	200	190	190	190	200	200	200	190	200	220
12	q	q	200	210	200	190	180	190	190	200	200	200	200	220
13	q	b	200	200	210	190	190	b	200	b	b	b	b	b
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c
15	c	c	c	c	c	c	c	c	c	c	c	c	c	c
16	b	200	200	200	180	200	200	200	200	190	190	190	190	210
17	230	200	200	220	200	190	180	180	190	190	180	180	180	210
18	q	q	190	180	190	190	180	180	180	180	190	190	200	q
19	230	b	200	200	180	180	160	180	190	200	210	190	200	q
20	b	210	210	200	200	190	190	200	180	180	190	190	200	c
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c
22	q	q	200	190	180	170	170	200	200	180	190	190	200	200
23	b	b	b	190	200	190	170	c	200	220	a	b	b	200
24	c	q	200	210	210	200	200	200	190	190	180	210	210	200
25	q	240	200	200	210	210	250	190	b	200	200	200	200	q
26	q	q	b	200	c	c	c	200	c	200	200	200	210	200
27	q	q	b	230	200	200	180	200	200	200	210	200	190	210
28	q	220	210	b	b	180	(200)	(200)	200	200	200	200	200	210
29	q	230	200	180	200	190	200	180	200	180	200	190	200	c
30	q	q	c	180	180	180	200	200	180	180	160	160	190	200
31	q	210	200	190	200	200	190	190	190	190	170	200	180	200
Median	*	210	200	200	200	190	190	195	190	200	195	200	200	205
No.	14	22	24	23	23	24	23	24	25	24	25	22	22	14

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T.

MACQUARIE ISLAND h\*F1, DECEMBER 1950

## HOURLY VALUES OF h'Es OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	100	130	110	b	100	g	100	b	100	100	110	110	100	100	100	120	100	100	110	110	100	c	
2	100	100	100	100	100	100	g	100	100	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
3	c	c	c	c	c	c	c	c	c	c	c	100	100	100	100	100	100	110	c	c	100	100	100	100
4	100	100	100	100	100	100	g	g	g	100	100	100	100	100	100	100	100	100	100	100	140	100	120	
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	110	100	100	100	140	125	
6	e	e	110	100	100	b	75	100	g	100	b	b	100	100	g	g	g	100	100	100	100	100	100	100
7	100	100	100	100	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
8	c	c	c	c	c	c	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	100	100	100	100	
10	100	100	100	100	100	100	100	100	140	120	110	110	100	100	c	c	c	c	c	c	c	c	c	
11	100	100	90	100	100	100	90	110	100	100	100	110	100	100	100	100	100	100	110	100	100	100	100	
12	100	100	100	e	g	g	g	g	g	100	100	90	90	110	100	100	100	100	100	100	100	100	100	
13	110	100	100	100	100	100	110	b	90	90	90	90	100	100	100	100	100	90	90	c	c	c	c	
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
15	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
16	100	100	100	100	100	b	100	g	100	100	100	100	100	100	100	100	100	b	b	110	110	100	110	100
17	90	e	e	e	g	110	110	110	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
18	e	e	100	100	100	100	g	g	100	100	g	g	100	100	100	100	100	110	g	g	g	g	100	
19	100	100	e	110	90	100	b	g	100	100	100	g	100	100	100	100	120	g	g	g	g	100	100	
20	100	100	100	100	100	100	b	g	g	g	100	g	100	g	100	g	100	110	110	110	100	100	c	
21	c	c	c	c	c	c	c	c	c	c	c	c	b	c	c	c	110	100	c	90	100	100	100	
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
23	100	100	100	100	100	100	90	90	c	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
24	90	90	90	90	b	120	110	110	100	100	100	100	100	100	100	100	100	110	100	100	100	b	b	
25	90	100	100	100	b	b	g	120	110	b	b	100	b	b	g	g	100	100	100	100	100	100	b	
26	100	b	b	100	100	b	b	b	c	c	c	c	c	b	g	g	c	c	c	b	b	b	b	
27	100	100	100	100	100	100	b	b	110	100	100	100	100	100	100	100	100	100	100	100	b	100	100	
28	100	100	100	100	100	100	100	100	b	100	b	100	100	100	100	100	100	c	c	100	100	100	100	
29	100	100	100	100	100	100	130	100	100	100	100	100	100	100	100	100	100	120	110	100	100	100	100	
30	100	e	100	100	100	100	100	120	100	c	100	100	100	100	100	100	100	110	110	100	160	e	100	
31	100	100	100	100	100	100	90	100	100	100	100	100	100	100	100	100	100	120	120	g	g	120	100	
Median	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	100	100	100	100	100	100	
No. •	24	21	22	22	21	17	14	18	19	21	19	15	21	15	11	10	22	20	7	19	19	19	21	21

## HOURLY VALUES OF (M 3000)F1 OBSERVED DURING DECEMBER 1950 AT MACQUARIE ISLAND

Hour Day	05	06	07	08	09	10	11	12	13	14	15	16	17	18
1	q	3.5	3.6	-b	3.6	3.8	4.1	4.0	4.0	4.0	3.6	3.4	3.6	3.5
2	q	3.6	3.6	3.6	c	c	c	c	c	c	c	c	c	c
3	c	3.6	3.6	-c	3.6	3.7	3.8	3.7	3.7	3.7	3.5	3.6	3.6	3.6
4	q	3.6	3.6	3.7	3.6	3.7	3.7	3.7	3.8	3.7	3.7	3.7	3.6	3.6
5	c	3.6	3.6	3.9	3.9	4.0	4.0	3.7	3.8	3.7	3.7	3.6	3.7	3.6
6	b	3.7	3.7	3.8	3.1f	b	b	3.6	3.7	3.7	3.5	3.7	3.6	3.6
7	c	3.6	3.6	-c	3.6	3.6	3.6	-c	3.7	3.7	3.6	-c	3.6	3.6
8	q	3.6f	3.6	3.6	3.7	3.6	3.6	3.7	3.7	3.7	3.6	3.6	3.6	3.6
9	q	3.6f	3.7	(4.1)f	(4.0)f	3.6	3.7	3.8	3.6	3.7	3.6	3.6	3.7	3.7
10	q	3.6	3.6	3.6	3.6	3.7	3.5	3.6	3.7	3.7	3.6	3.6	3.6	3.5
11	q	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
12	q	3.5	3.7	3.8	3.9	3.9	3.9	3.7	3.7	3.8	3.6	3.8	3.7	3.7
13	q	3.7	3.7	3.7	c	c	c	c	b	b	b	c	c	c
14	c	c	c	c	c	c	c	c	c	c	c	c	c	c
15	c	c	c	c	c	c	c	c	c	c	c	c	c	c
16	b	3.8	3.8	3.7	3.9	3.9	4.0	3.9	3.9	3.9	3.6	3.6	3.6	3.4
17	1	3.5	3.6	3.6	3.6	3.6	3.7	3.8	3.8	3.8	3.6	3.6	3.9	3.9
18	q	3.6	3.6	3.7	3.7	3.6	3.7	3.7	3.8	3.8	3.7	3.7	3.7	3.7
19	3.5f	-b	3.7f	3.6	3.7	3.8	3.8	3.8	3.8	3.8	3.7	3.6	3.6	3.6
20	b	3.5	3.6	3.8	3.8	3.8	3.7	3.7	4.2	3.9	3.9	3.7	3.6	3.5
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c
22	q	q	1	3.6	3.6	3.6	3.8	3.6	3.7	3.7	3.7	3.7	3.7	3.7
23	q	b	-b	3.7	3.6	3.7	3.6	3.9	3.7	3.8	3.8	3.7	3.7	3.7
24	c	-q	3.7	3.9	3.8	3.7	3.7	3.9	3.7	b	3.8	3.8	3.7	3.8
25	q	3.6	3.6	3.9	3.9	3.8	3.8	3.7	3.9	3.9	3.9	3.8	3.7	3.7
26	q	q	b	3.7	3.5	c	c	c	c	c	c	3.7	3.7	3.6
27	q	q	-b	3.7	3.7	3.9	4.0	3.8	3.8	3.8	3.6	3.6	3.6	3.6
28	q	4.0	3.6	-b	3.7	b	3.7	(3.9)	3.9	3.9	3.8	3.5	3.5	3.5
29	q	1	3.6	3.7	3.8	3.6	3.6	3.5	3.5	3.9	3.6	3.7	3.9	3.8
30	q	-q	3.6	3.6	3.9	3.8	3.8	3.6	3.8	4.0	3.8	3.8	3.5	3.6
31	q	3.6	3.6	21	3.6	3.7	3.7	3.7	3.8	3.8	3.6	3.6	3.8	3.1
Median No.	%	3.6	3.6	21	3.6	3.7	3.7	3.7	3.8	3.8	3.7	3.6	3.6	3.7
			24	24	23	23	23	23	22	22	24	23	22	21

Sweep: 1.0 - 13.0 Mc/s in 1m 55s

Time used: 157. 5° E.M.T. MACQUARIE ISLAND (M 3000)F1, Dec. 1950

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