

COMMONWEALTH OF AUSTRALIA  
DEPARTMENT OF EXTERNAL AFFAIRS

AUSTRALIAN NATIONAL ANTARCTIC RESEARCH EXPEDITIONS



INTERIM REPORTS

12

Hourly Measurements of Ionospheric Characteristics  
Macquarie Island, 1954

*By*

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## INTRODUCTION

The following report presents hourly values and graphs of ionospheric characteristics observed during 1954 at Macquarie Island (Geographic co-ordinates  $54^{\circ} 29' S$ ,  $158^{\circ} 58' E$ ; Geomagnetic coordinates  $61^{\circ} S$ ,  $243^{\circ} E$ .)

The equipment, originally designed and built at C.S.I.R.O. Radiophysics Laboratory, is, with minor modifications, as described by Higgs (1943) and is substantially similar to ionospheric recorders in use at Townsville, Brisbane, Canberra, Hobart and Watheroo. 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. 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 included 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 resistors, are supported on a single 70 foot guyed steel mast.

The characteristics published in this report are those recommended at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948; namely hourly values and monthly median values for each hour of foF2, foF1, foE, fEs, (M3000)F2, hpF2, h'F2, h'F1, h'E, and h'Es.

The symbols and terminology used in these tabulations have conformed as far as possible to those adopted at the above meeting. They were modified slightly following further recommendations made by Commission III of U.R.S.I., 1950, and as the result of discussion during the Tenth General Assembly of U.R.S.I., 1952. A complete list of symbols used in presenting ionospheric data obtained at Australian stations, commencing with the data issued in Ionospheric Prediction Service Series D; No. 46, is included in that issue.

## ACKNOWLEDGMENTS

Acknowledgment is made to the Ionospheric Prediction Service of the Commonwealth Observatory for the loan of the equipment and for help in the reduction and publication of results.

## REFERENCES.

- |                  |  |
|------------------|--|
| Higgs, A.J. 1943 | Commonwealth Scientific and Industrial Research Organization, Radiophysics Laboratory Report No.P.D.25/2.  |
| Cones, H.N. 1949 | Impedance Characteristics of Some Experimental Broad-band Antennas for Vertical Incidence Ionospheric Soundings, J. of Res. of N.B.S. <u>43</u> 71, July 1949. |
| U.R.S.I. 1950    | International Scientific Radio Union, Proceedings of the General Assembly held in Zurich from September 11-22, 1950 Vol. VIII, Part 1, p.345.                  |

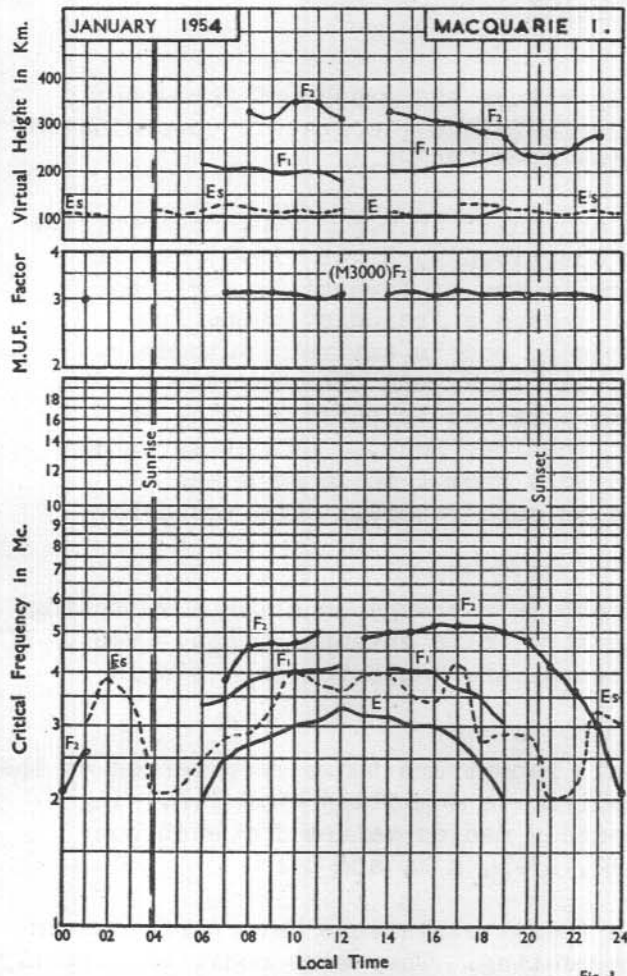


Fig. 1

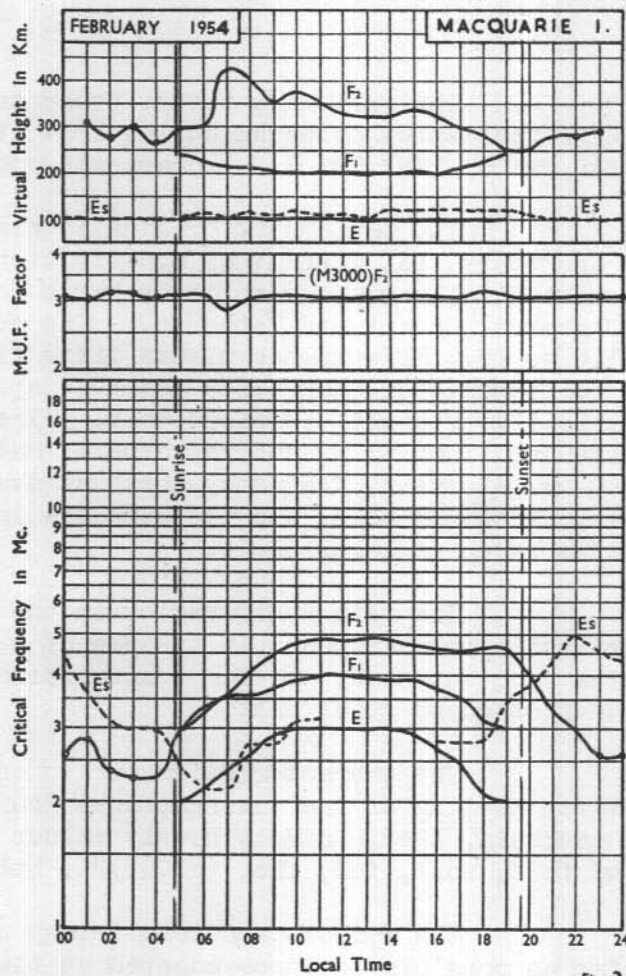


Fig. 2

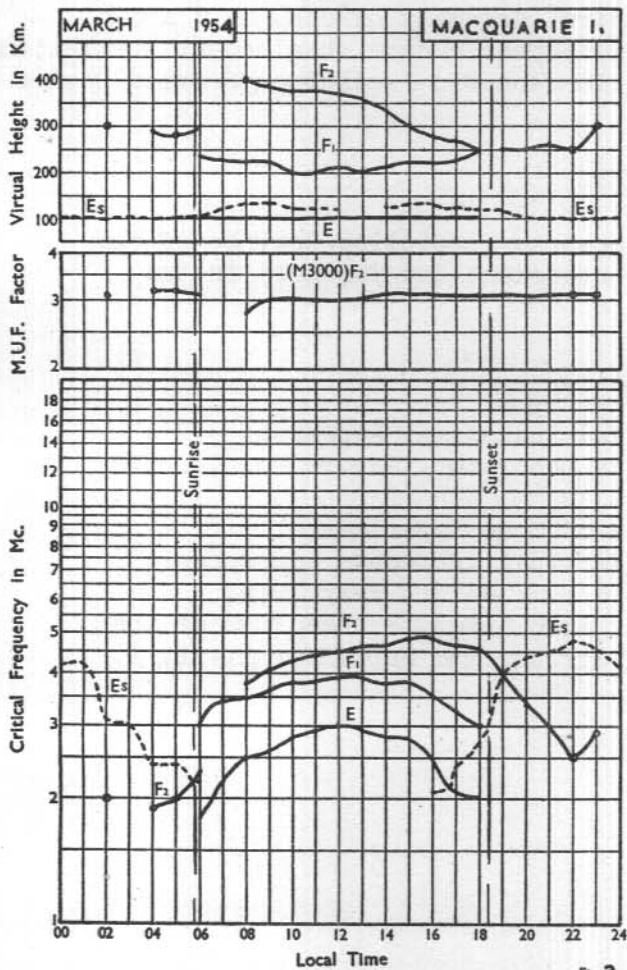


Fig. 3

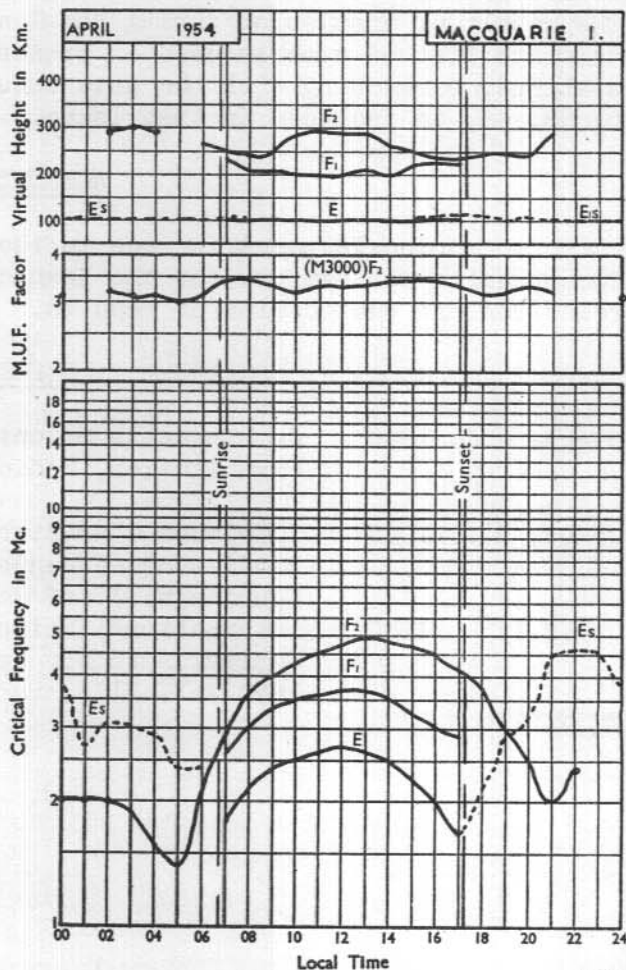
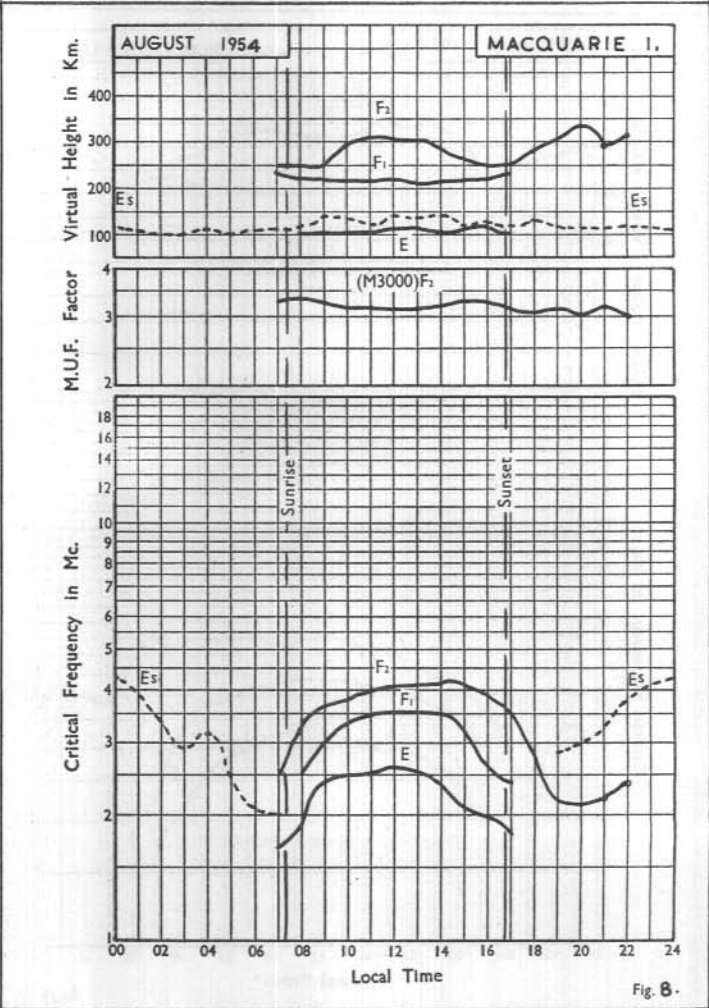
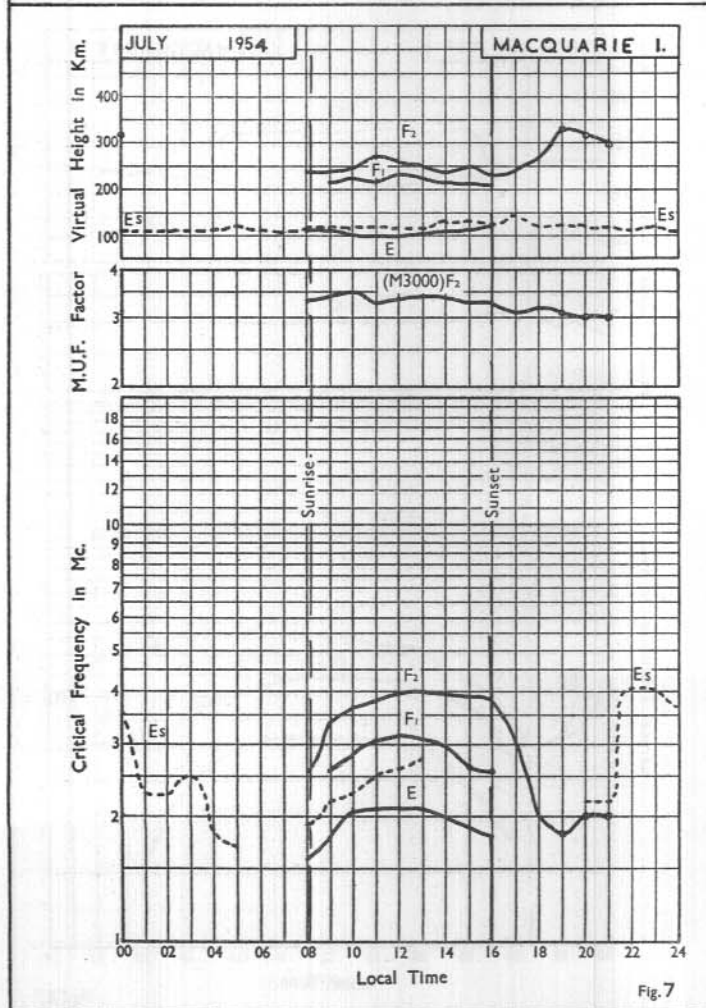
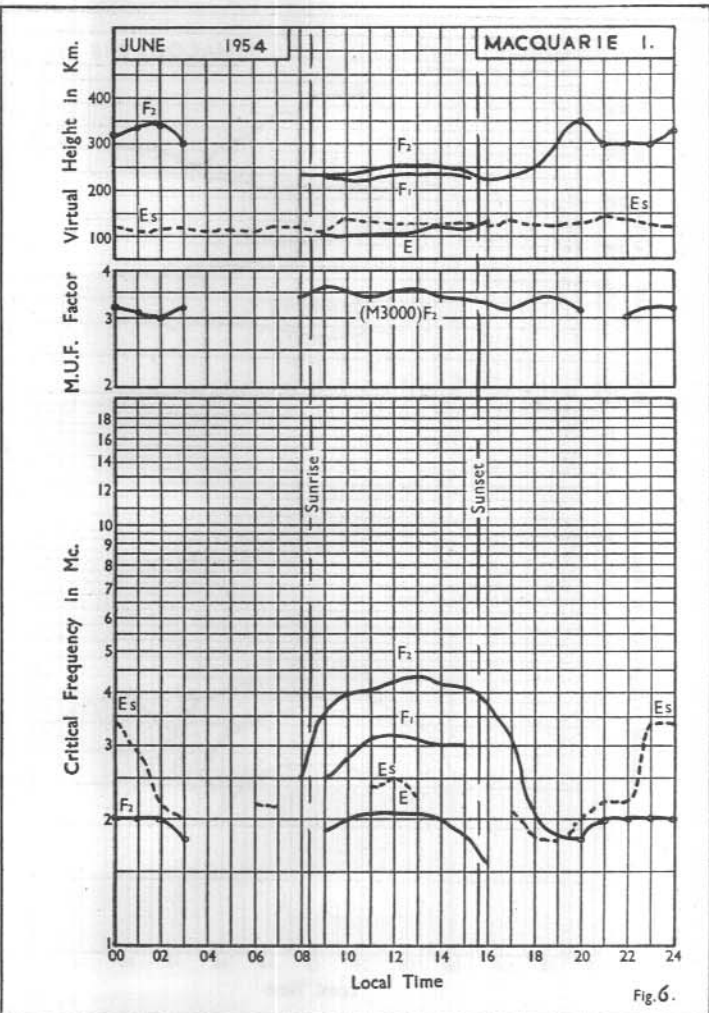
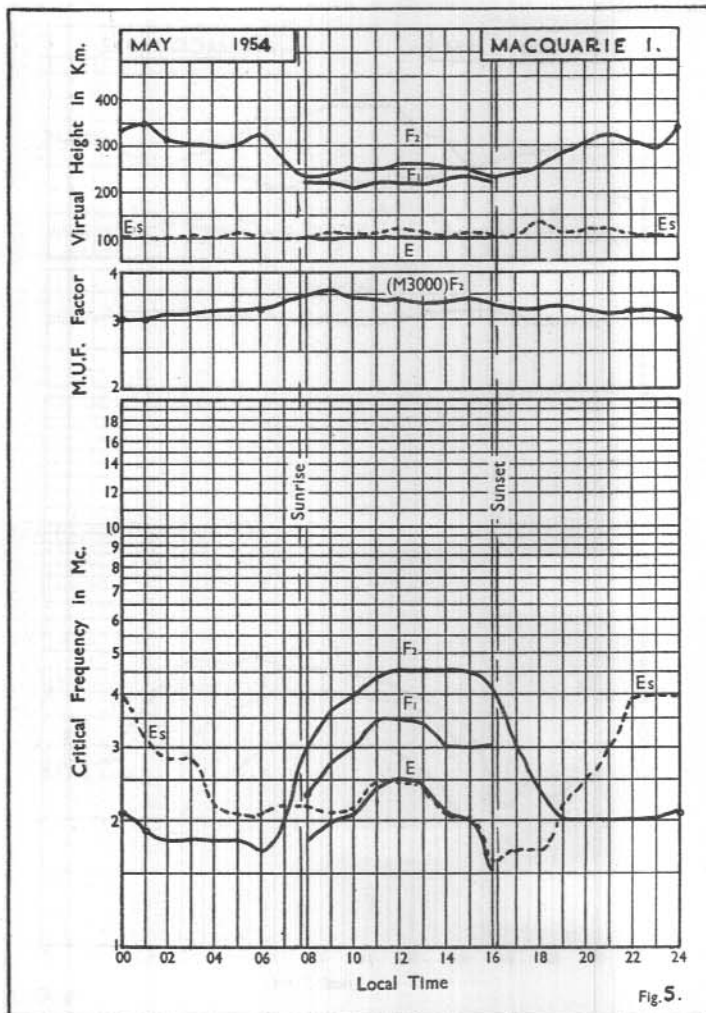


Fig. 4



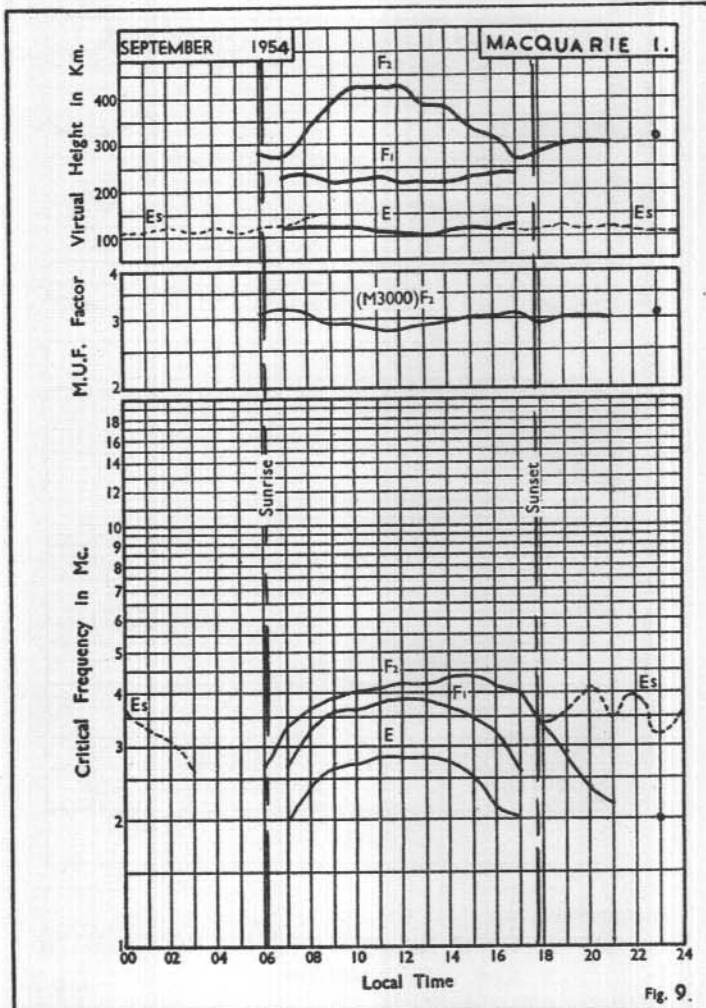


Fig. 9.

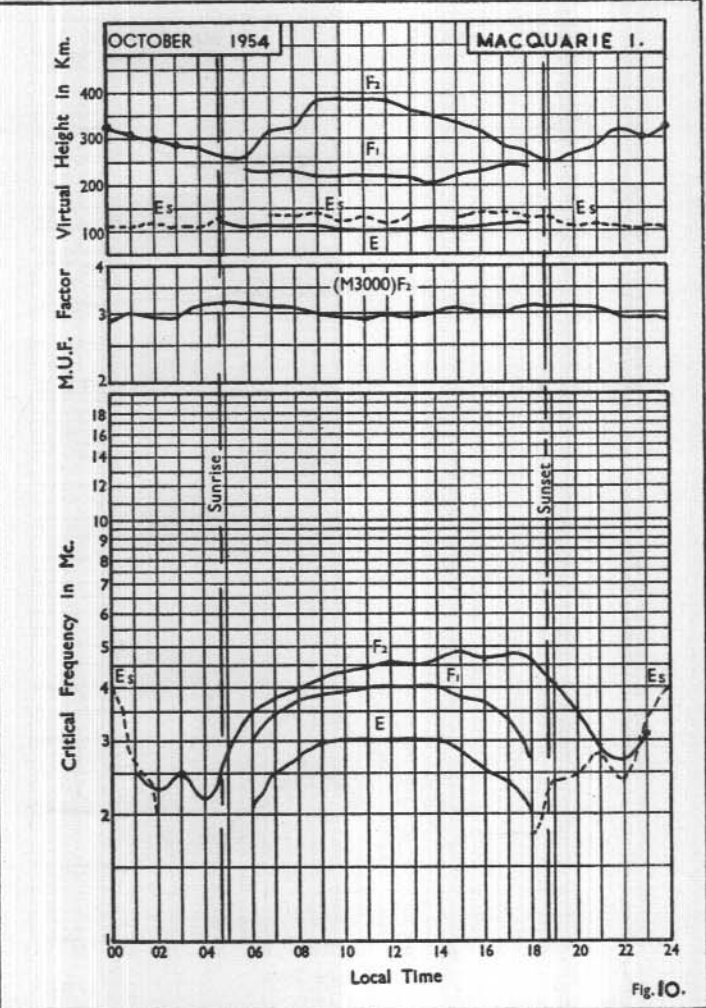


Fig. 10.

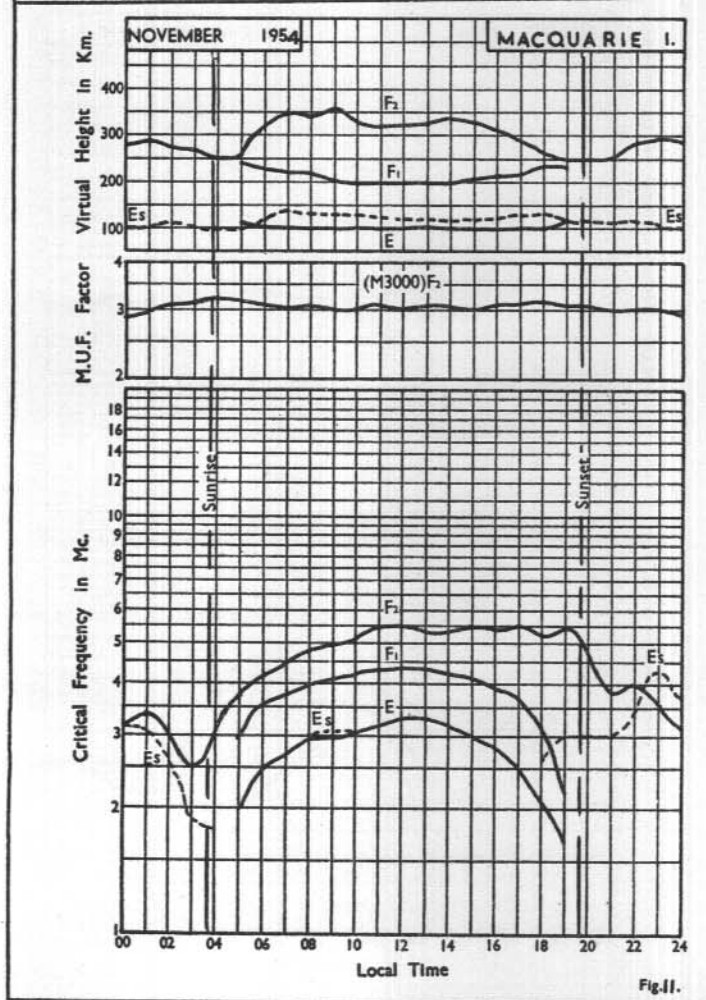


Fig. 11.

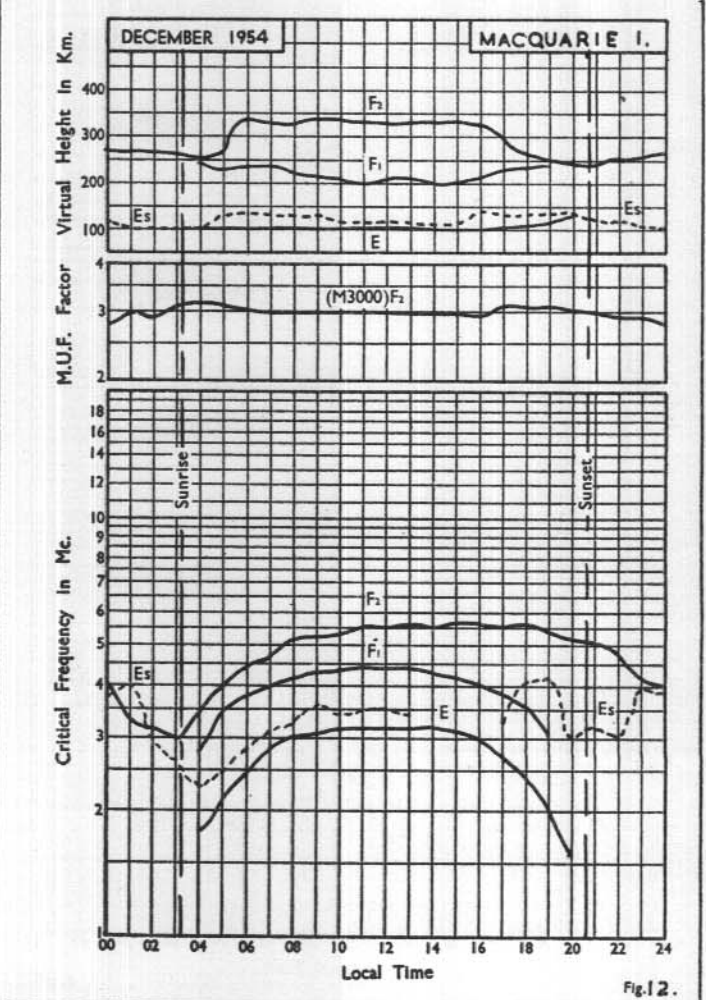


Fig. 12.

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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																								
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24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	5.2	b	4.0p	3.6	3.9	a	a
25	3.0p	a	a	a	a	3.1	3.7	3.9	g	4.2	4.4	4.7p	4.7p	4.7p	5.0	5.3	5.0	5.2	5.1f	5.1	4.5	4.3f	3.5f	2.9f
26	2.1	2.7	2.6	2.0	3.0	3.3	3.7	g	g	4.7p	5.0	4.7	a	4.9	5.0	4.8	a	5.0	4.7	5.0	4.7	5.1p	5.0p	3.5
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	5.3	5.3	5.5	5.3	5.4	5.0	4.8	4.1	3.2	b
28	1.8	b	b	b	b	b	3.3	3.9	4.7p	5.0p	4.6p	5.1p	s	m	m	m	m	m	m	4.8	4.8p	4.2	3.2	2.4
29	a	3.0f	a	a	b	3.0	b	b	4.5p	s	4.9	5.1	5.3	b	a	a	5.3	5.2	5.5	5.0	4.8	5.0f	3.8p	a
30	2.1f	1.9f	1.6f	b	2.0f	3.2	b	4.5	4.7	a	a	b	b	5.2	5.0	a	5.2	a	a	a	4.6f	4.0	3.2f	2.5
31	2.0f	1.7f	a	a	a	a	b	b	4.5	4.7p	4.9	5.3	4.6p	a	4.2p	4.8	5.2	5.1	5.2	4.8	4.6p	3.9p	3.0f	
Median	(2.1)	(2.6)	*	*	*	*	*	(3.9)	(4.6)	(4.7)	(4.7)	(5.0)	*	(4.9)	(5.0)	(5.0)	(5.2)	(5.2)	(5.2)	(5.0)	(4.8)	(4.2)	(3.6)	(3.0)
No.	5	5						5	6	5	6	6		5	5	5	6	7	6	8	9	9	8	6

1a.

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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
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24	a	a	a	a	a	1	1	1	g	450	450	370	370	380	370	330	300	300	(300)	310	300	250	a	a
25	300	300	290	300	290	230	230	420	g	g	350	350	340	a	350	290	300	a	280	250	240	230	230	170
26	a	a	a	a	a	a	a	a	a	a	a	a	a	a	340	320	290	300	270	270	240	220	250	b
27	a	b	b	b	b	210	a	330	300	300	e	s	m	m	m	m	m	m	m	270	250	230	230	290
28	a	350p	a	a	b	240	b	330	a	350	320	320	b	a	a	330	300	290	260	250	250	270	a	
29	260	300p	260	b	270	250	b	290	300	a	a	b	b	350	330	a	310	a	a	a	240	240	270	270
30	250	300	a	a	a	a	b	b	b	320	360	350	300	360	a	340	320	300	270	250	240	240	230	200
31	a	300	a	a	b	b	b	300	250	300	340	330	300	300	300	330	340	320	280	280	250	260	270	330
Median	*	(300)	*	*	*	*	*	*	(330)	(320)	(350)	(350)	(320)	*	(340)	(330)	(310)	(300)	(280)	(270)	(240)	(240)	(255)	(275)
No.	5	5							6	5	6	5	5		5	5	7	6	7	8	9	9	8	6

1b.

HOURLY VALUES OF hpF2 OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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23	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	u	u	u	320	290	a	a		
24	c	a	a	a	a	u	u	u	g	u	u	u	u	u	u	u	u	a	a	300	280	270	280	300	320	
25	300	300	300	300	u	250	240	220	g	g	u	u	u	u	u	u	u	a	a	270	260	270	270	240	270	
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	u	u	u	u	u	u	290	280	270	250	290	b
27	a	h	h	h	h	h	230	a	u	u	u	a	a	m	m	m	m	m	m	m	280	280	260	280	320	
28	a	370	a	a	b	250	b	b	u	a	u	u	u	b	a	a	u	u	u	300	300	300	290	360	a	
29	270	c	c	b	280	270	b	u	u	a	a	b	b	u	u	a	u	a	a	a	260	290	260	300	290	
30	260	320	a	a	a	a	b	b	u	u	u	u	u	u	a	u	u	u	u	230	290	270	260	270	270	
31	a	300	a	a	b	b	b	u	u	u	u	u	u	u	u	u	u	u	u	280	290	250	280	320	340	
Median	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	(285)	(280)	(270)	(280)	(295)	(305)
No.																					6	7	9	9	8	6

2a.

HOURLY VALUES OF (M3000)F2 OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	
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23	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	3.3	b	f	3.1	3.1	a	a	
24	c	a	a	a	a	c	2.9	3.1	g	2.7	2.7	2.9	2.9	3.0	3.0	3.1	3.2	3.1	3.0	3.2	3.1	3.1	2.9	2.9	
25	2.9	2.9	2.8	3.1	3.2	3.6	3.2	2.8	g	g	2.7	2.9	3.1	a	3.0	3.5	3.2	a	3.3	3.2	3.2	3.1	3.1	3.2	
26	c	c	c	c	c	c	c	c	c	c	c	c	c	c	3.1	3.2	3.3	3.2	3.1	3.2	3.1	3.3	3.1	a	
27	3.1	b	b	b	b	b	3.7	3.3	3.2	3.2	3.2	3.2	a	m	m	m	m	m	m	m	3.1	3.1	3.1	2.9	
28	a	2.7	a	a	b	3.4	b	b	3.1	a	3.1	3.2	3.0	b	a	a	3.1	3.3	3.1	3.1	2.9	3.3	2.9	a	
29	3.2	3.1	3.1	b	3.1	3.1	b	3.4	3.2	a	a	b	b	3.0	3.1	a	3.1	a	a	a	3.3	3.2	3.1	3.0	
30	3.4	3.0	a	a	a	a	b	b	b	3.2	3.1	3.1	3.2	3.0	a	3.2	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.2	
31	a	3.0	a	a	b	b	b	3.2	3.7	3.3	3.2	3.0	3.3	3.2	3.2	3.2	3.0	3.1	3.1	3.1	3.1	3.1	3.0	3.0	
Median	*	(3.0)	*	*	*	*	*	(3.2)	(3.2)	(3.2)	(3.1)	(3.0)	(3.1)	*	(3.1)	(3.2)	(3.1)	(3.2)	(3.1)	(3.1)	(3.1)	(3.1)	(3.1)	(3.1)	(3.0)
No.		5						5	6	5	6	6	5		5	5	7	6	6	7	9	9	8	6	

2b.

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f^oF_1$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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
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23				o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	3.7p	3.0	2.8	2.4p	
24				a	a	a	3.4b	3.6p	3.7p	3.9	4.0	4.1	4.2	4.2	4.1	4.0	4.0	4.0	3.7	3.6	3.1	q		
25							(3.5)	(4.0)	(3.9)	3.8	4.1	4.1	a	4.1	4.0	4.0	a	3.7	3.1p	q				
26				o	o	o	o	o	o	o	o	o	o	o	4.1	4.0	4.0	3.7	3.4	a	a			
27				b	b	b	b	3.5	3.6	4.0p	4.1p	4.4p	a	m	m	m	m	m	m	3.1p	(2.8p)	(2.3)		
28						q	(3.8)	(3.7)	3.8	4.0	4.1	4.0p	4.0	b	a	a	4.0	3.8	3.4	(3.0)	q			
29						q	3.5p	3.7	4.0	a	a	b	b	(4.2)	4.3	a	4.0	a	a	a	q			
30				a	a	a	3.3	3.5	(3.8)	4.0	(4.2)	4.0	4.2	4.2	a	3.9b	4.0	3.7	3.5	3.0	q			
31				a	b	3.0	3.5	3.5	3.9	4.0	4.1	4.1	4.2	4.2	4.2	4.1	4.0	3.9	3.7	3.3	q			
Median						*	3.4	3.5	3.8	4.0	4.1	4.1	4.2	*	4.1	4.0	4.0	3.7	3.5	3.1	*	*		
No.							5	7	7	6	6	6	5		5	5	7	6	7	7				

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $h^oF_1$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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
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23				o	o	c	o	o	o	o	o	o	o	o	o	o	o	o	210	220	270	300		
24				a	a	a	250	220	210	210	200	200	180	190	200	200	210	210	210	250	q			
25								200	200	180	180	200	180	a	200	200	200	a	250	210	q			
26				o	c	c	o	o	o	o	o	o	o	o	220	200	200	230	220	a	a			
27				b	b	b	b	210	200	180	190	170	s	m	m	m	m	m	m	220	230	210		
28						q	220	200	220	200	200	b	200	b	a	a	220	240	210	220	q			
29						q	200	230	1	a	a	b	b	1	220	a	260	a	a	a	q			
30				a	a	a	200	200	o	200	o	180	170	210	a	200	200	190	230	230	q			
31				a	b	190	220	230	220	220	210	210	220	230	200	200	210	210	240	240	q			
Median						*	220	210	210	200	200	200	180	*	200	200	210	210	220	230	*	*		
No.							5	7	5	6	5	5	5		5	5	7	6	7	7				





HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

Sweep  $\Delta t_0 = 13.0 \text{ Mc/s in } 1\text{m } 55\text{s}$

$157.5^\circ\text{E}$  Mean Time

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
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24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	4.2	g	g	7.5	e	3.8	3.6
25	3.4	3.2	4.5	2.7	3.0	3.0	g	2.7	2.7	3.0	4.0	3.7	3.7	g	3.7	3.1	g	g	2.5	2.4	g	e	2.2	1.8
26	4.0	3.1	3.2	5.2	1.4	2.1	3.7	2.7	2.9	3.5	3.8	4.7	4.4	8.3	6.0	6.8	4.1	5.7	3.7	2.8	2.5	5.5	3.5	e
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	g	g	3.8	8.5	5.7	3.9	e	2.1	4.0
28	2.1	2.1	1.8	g	g	3.0	2.5	2.7	2.8	3.3	3.2	g	3.1	m	m	m	m	m	m	5.3	2.8	2.2	e	3.3
29	4.4	3.0	4.4	4.4	2.0	2.3	2.5	5.8	3.5	3.8	4.0	3.7	3.6	5.4	7.0	4.1	3.4	5.0	2.4	2.0	1.9	2.0	6.2	6.5
30	2.0	e	e	e	2.2	2.1	3.4	4.2	5.5	6.3	6.5	6.5	6.0	g	4.0	7.3	4.5	6.8	6.1	7.5	4.5	2.4	e	e
31	1.9	2.0	b	b	b	b	2.5	b	b	3.2	4.0	3.3	3.6	4.0	6.4	3.5	b	b	2.5	2.5	b	e	e	e
Median	3.0	3.0	3.8	3.4	2.1	2.2	2.5	2.7	2.8	3.3	4.0	3.7	3.6	4.0	4.0	3.5	3.4	4.2	2.7	2.8	2.8	2.0	2.2	3.3
No.	7	7	6	6	6	6	7	6	6	7	7	7	7	6	7	7	6	7	8	9	8	9	9	9

5a.

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING JANUARY 1954 AT MACQUARIE ISLAND

Sweep  $\Delta t_0 = 13.0 \text{ Mc/s in } 1\text{m } 55\text{s}$

$157.5^\circ\text{E}$  Mean Time

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																								
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17																								
18																								
19																								
20																								
21																								
22																								
23																								
24	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	14.0	g	g	17.0	e	10.0	10.0
25	100	100	100	100	100	100	g	150	150	140	120	110	110	g	110	110	g	g	120	120	g	e	130	130
26	110	120	120	120	120	110	100	100	120	100	100	100	120	120	120	100	150	150	130	120	120	120	100	e
27	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	g	g	130	120	120	100	e	120	120
28	110	120	120	g	g	100	110	150	130	100	120	g	120	m	m	m	m	m	m	110	120	110	e	140
29	100	100	100	100	120	100	120	110	120	120	110	110	120	100	110	100	120	120	150	130	120	150	100	100
30	110	e	e	e	14.0	130	140	120	120	100	100	100	100	g	120	130	130	130	130	120	130	110	e	e
31	130	14.0	b	b	b	b	130	b	b	110	120	110	120	100	100	100	b	b	14.0	120	b	e	e	e
Median	100	100	100	100	100	130	g	140	130	130	130	130	130	g	g	g	g	g	150	140	130	110	130	120
No.	110	110	100	*	120	105	120	130	125	110	120	110	120	*	110	100	*	130	130	120	120	110	110	120

5b.

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E. Mean Time

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	(3.2)	3.5	3.4	a	a	2.6	3.2	3.4	4.5	4.7p	(4.9)	4.9	4.9	5.1	5.1	5.5	a	a	a	a	b	a	a	a	
2	a	a	a	a	a	a	3.1	3.4	3.7f	b	b	b	b	b	b	4.5f	4.5pf	4.5f	4.1f	3.5f	3.2f	a	a	a	
3	a	a	a	2.6f	2.6	3.0	3.5	4.5	4.1	4.4	4.5	b	(4.5)	b	(4.7)	4.5	4.4f	a	a	a	4.1f	a	a	a	
4	a	a	(2.2)	(1.7)	2.4	3.2	3.3	3.5	3.8	b	4.4	5.0p	4.5f	o	5.0	b	b	5.9	5.6f	4.9f	3.3f	3.5f	a	2.7f	
5	a	a	a	a	a	b	b	3.3	a	a	5.4	5.1p	5.0	5.0p	5.0	5.0p	4.4	4.7	4.8	5.2	5.0	3.5f	3.2f	a	
6	a	a	2.2	a	a	b	o	4.0	4.2	4.5	5.0	o	4.2f	4.9	4.5	4.1p	4.7p	4.6	4.7p	5.2	4.4f	3.3	3.1f	3.1f	
7	2.7	b	2.0	b	a	b	4.3	a	(4.5)	4.7f	5.0f	5.5f	5.3f	5.3f	5.3	4.8	4.8	5.1	4.9	5.1f	4.5f	3.6f	2.8f	2.1f	
8	1.7	1.6f	ba	ba	b	4.4p	4.8p	4.2	b	4.7f	4.9	a	5.1	4.9f	4.9	4.5f	4.5	4.8	5.0	5.0f	4.1f	3.0f	2.6f	a	
9	ba	3.0f	2.5pf	2.1pf	2.3f	3.0f	3.4f	3.8f	b	4.7f	4.5f	o	o	o	o	o	o	4.9f	5.0f	4.0pf	3.4pf	3.3f	3.0f		
10	2.2pf	a	a	a	a	h	a	h	4.1	4.5	4.8	4.9	5.0f	5.2f	5.2	5.5	5.5	5.6f	4.6f	3.9f	3.8f	3.7pf	a	a	
11	a	b	2.8f	2.5f	a	2.9	3.4	b	b	4.3	4.5	4.7p	4.6p	5.0f	4.7	4.9f	4.7f	b	5.1	4.6f	3.8f	3.0f	2.5f	a	
12	b	3.3f	2.8f	2.7f	a	3.3f	b	4.2f	4.7p	4.5f	b	b	b	b	(4.6)	4.7	4.7	4.5p	4.2f	4.7f	3.6	2.8f	2.1f	2.1f	
13	a	2.5f	b	1.8f	b	b	3.9f	4.2p	4.5	o	5.1	5.0f	5.5	5.2f	5.2f	5.1	4.8f	4.4f	4.6	a	(4.4)	a	3.7f	a	
14	a	a	a	a	1.9f	4.1p	3.9	b	4.5p	4.5	4.8	5.3	5.5	5.5	5.3	5.0	5.3	4.9	4.9	5.8	5.7f	a	a	a	
15	a	a	a	a	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	4.0f	5.0f	4.1f	a	a	a
16	a	a	a	a	c	c	c	c	c	c	c	b	3.8	4.1p	g	4.2p	4.8f	4.5f	4.3f	4.4	4.0	3.5f	2.5	a	
17	a	a	a	a	a	b	b	b	b	b	b	b	b	b	b	4.2f	b	b	4.4f	4.4	a	a	a	a	
18	a	a	a	a	a	a	b	b	b	b	b	a	b	b	b	b	3.8	4.1f	b	4.5	3.8f	a	a	aa	
19	a	a	a	a	a	a	a	b	b	b	b	b	4.2	b	4.1p	b	b	4.2	a	a	a	4.0	a	a	a
20	a	b	b	a	g	g	g	a	a	g	g	g	g	g	g	g	g	g	4.0	4.0	4.1	4.0f	3.0f	3.3	2.5f
21	2.6f	2.6f	a	a	a	g	g	g	g	4.1	4.7p	4.6p	4.7p	4.9p	a	4.8	5.7	4.9	4.8	4.8f	4.7p	a	aa	aa	
22	a	a	b	a	a	a	a	a	a	a	a	a	a	ba	a	4.7f	4.7f	a	a	a	b	a	a	b	
23	a	a	a	a	a	2.5	b	b	b	b	b	b	b	4.5	b	b	4.8f	3.9f	4.1	3.7	a	a	a	a	
24	a	a	a	a	a	a	a	g	g	b	b	g	g	g	g	g	g	3.7	3.7a	3.7	2.9f	b	a	a	
25	a	a	2.0f	a	a	a	a	g	g	g	g	a	b	4.2	4.5	4.1f	4.3	4.5	4.6f	4.3f	4.5f	2.1f	a	a	
26	a	a	c	c	c	c	c	c	c	c	c	c	c	c	c	4.3f	o	b	a	a	a	b	b	a	
27	a	a	a	a	a	a	a	a	a	b	a	a	a	a	a	a	a	4.0	a	4.1f	a	c	o	o	
28	ba	ba	ba	a	a	[3.1]	[3.5]	[3.7]	4.0	b	c	c	b	b	b	4.4	4.2	4.8	4.2f	3.4f	3.2f	[2.7]	a	ba	
29																									
30																									
31																									
Median	(2.6)	(2.8)	(2.4)	(2.3f)	2.3	3.0	3.4	3.6	4.1	4.5	4.8	4.9	4.8	4.9	4.8	4.7	4.6	4.5	4.6	4.6f	4.0f	3.3f	3.0f	(2.6f)	
No.	5	6	8	6	5	12	13	14	14	13	16	13	16	17	18	21	22	19	22	20	22	13	10	6	

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E. Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	a	340	240	a	a	330	240	280	260	240	b	340	290	330	320	340	a	(320)	a	a	b	a	a	a		
2	a	a	a	a	a	a	1	1	300	b	b	b	b	b	b	340	390	290	300	290	350	a	a	a		
3	a	a	a	320	320	270	250	270	410	330	380	b	370	b	340	370	340	a	a	a	410	a	a	a		
4	a	a	(420)	(340)	270	220	1	1	500	b	380	340	450	o	340	b	b	300	250	260	250	260	a	320		
5	a	a	a	a	a	b	b	400	a	a	420	400	340	320	310	340	340	240	260	250	210	250	260	a		
6	a	a	250	a	a	b	c	450	420	360	330	o	370	310	400	330	350	310	240	250	230	250	250	240		
7	290	(300)	270	b	a	b	300	a	290	300	300	310	280	300	300	290	300	270	240	240	220	230	250	250		
8	300	o	ba	ba	b	300	280p	330	b	300	300	a	350	320	300	330	340	330	280	240	250	280	300	a		
9	ba	300	250	260	270	250	400	450	b	330	350	o	o	o	o	o	o	o	280	260	300	280	270	1		
10	310p	a	a	a	a	b	a	b	320	350	340	300	330	290	350	300	290	290	380	230	300	290p	a	a		
11	a	b	320	300	a	300	260	b	b	380	400	370	420	350	450	350	310	b	270	250	250	330	320	a		
12	b	280	290	300	a	250	b	370	390	370	b	b	b	b	[370]	340	320	300	320	250	250	270	280	290		
13	a	310	b	1	b	b	250	340	310	o	300	330	240	330	320	300	320	280	290	a	[300]	a	300	a		
14	a	a	a	a	a	270	300	450	b	330	320	320	320	290	290	280	330	300	270	270	230	220	a	a	a	
15	a	a	a	a	a	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o		
16	a	a	a	a	a	b	b	b	b	b	b	b	b	b	b	420	b	b	300	290	a	a	a	a		
17	a	a	a	a	a	a	a	b	b	b	b	b	b	b	b	b	b	270	380	b	250	230	a	a	aa	
18	a	a	a	a	a	a	a	a	b	b	b	b	b	b	b	420	b	b	410	a	a	a	270p	a	a	a
19	a	a	a	a	a	a	a	a	b	b	b	b	b	b	b	550p	b	b	410	a	a	a	270p	a	a	a
20	a	b	b	a	g	g	g	a	a	g	g	g	g	g	g	g	g	g	400	330	250	230	250	250	280	
21	290	350	a	a	a	g	g	g	g	370	330	360	330	330	a	330	300	270	260	230	1	a	aa	aa		
22	a	a	b	a	a	a	a	a	a	a	a	a	a	a	a	400	280	a	a	a	b	a	a	b		
23	a	a	a	a	a	1	b	b	b	b	b	b	b	b	b	280	b	b	350	400	330	300	a	a	a	
24	a	a	a	a	a	a	a	g	g	b	b	g	g	g	g	g	g	380	300	290	280	b	a	a		
25	a	a	320	a	a	a	a	g	g	g	g	a	b	430	330	400	420	300	250	250	230	270	a	a		
26	a	a	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	310	o	b	a	a	a	b	a	
27	a	a	a	a	a	a	a	a	a	b	a	a	a	a	a	a	a	400	a	280	a	o	o	o	o	
28	ba	ba	ba	a	a	440	430	500	470	b	o	o	b	b	b	350	330	310	250	240	250	o	a	ba		
29																										
30																										
31																										
Median	*	(305)	(280)	(300)	(270)	300	300	425	400	350	370	350	330	330	325	340	325	300	280	250	250	270	(270)	(280)		
No.		6	8	5	5	11	11	12	14	13	15	13	16	17	18	22	22	20	22	20	21	12	9	5		

HOURLY VALUES OF  $f_{hp}F_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	u	u	u	a	a	u	260	u	u	u	b	u	u	u	u	u	a	a	a	a	b	a	a	a	
2	a	a	a	a	a	a	u	u	u	b	b	b	b	b	b	u	u	u	u	290	350	a	a	a	
3	a	a	a	u	u	270	250	u	u	u	u	b	u	b	u	u	u	a	a	a	u	a	a	a	
4	a	a	u	u	280	260	240	220	u	b	u	u	u	c	u	b	b	300	u	270	250	270	a	330	
5	a	a	a	a	a	b	b	u	a	a	u	u	u	u	u	u	u	u	270	270	340	250	290	a	
6	a	a	260	a	a	b	c	u	u	u	c	u	u	u	u	u	u	250	280	270	240	260	240	240	
7	320	b	280	b	a	b	u	a	u	u	u	u	u	u	u	u	u	280	270	260	250	250	280	280	
8	310	c	ba	ba	b	u	u	u	b	u	u	a	u	u	u	u	u	300	280	280	320	320	300	a	
9	ba	320	270	260	270	260	u	u	b	u	u	c	c	c	c	c	c	280	260	320	340	300	300		
10	c	a	a	a	a	b	a	b	u	u	u	u	u	u	u	300	290	290	380	300	320	320	a	a	
11	a	b	c	300	a	u	280	b	b	u	u	u	u	u	u	u	u	b	280	280	300	360	350	a	
12	b	310	320	310	a	300	b	u	u	u	b	b	b	b	u	u	u	300	320	280	290	280	290	290	
13	a	310	b	l	b	b	250	u	u	c	u	u	u	u	u	u	u	290	a	320	a	300a	a		
14	a	a	a	a	280	300	u	b	u	u	u	u	u	u	u	u	u	270	280	260	270	a	a	a	
15	a	a	a	a	c	c	c	c	c	c	u	u	u	u	u	u	a	b	270	240	260	a	a	a	
16	a	a	a	c	c	c	c	c	c	c	b	u	u	g	u	u	u	280	270	290	330	c	a	a	
17	a	a	a	a	a	b	b	b	b	b	b	b	b	b	u	b	b	u	300	a	a	a	a	a	
18	a	a	a	a	a	a	b	b	b	b	b	a	b	b	b	b	u	u	b	270	250	a	a	aa	
19	a	a	a	a	a	a	a	b	b	b	b	u	b	u	b	b	u	a	a	a	u	a	a	a	
20	a	b	b	s	g	g	g	s	a	g	g	g	g	g	g	g	g	u	u	260	270	280	270	340	
21	290	350	a	a	a	g	g	g	g	u	u	u	u	u	u	u	u	270	270	260	l	a	aa	aa	
22	a	a	b	s	s	s	s	s	s	s	s	s	s	s	s	s	u	u	a	a	a	b	a	a	b
23	a	a	a	a	a	280	b	b	b	b	b	b	b	u	b	b	u	u	u	u	a	a	a	a	
24	a	a	a	a	a	a	a	g	g	b	b	g	g	g	g	g	g	u	u	320	310	b	a	a	
25	a	a	320	a	a	a	a	g	g	g	g	s	b	u	u	u	u	310	260	275	250	270	a	a	
26	a	a	c	c	c	c	c	c	c	c	c	c	c	c	c	u	c	b	a	a	a	b	b	a	
27	a	s	s	s	s	s	s	s	s	s	b	s	s	s	s	s	u	s	280	a	c	c	c	c	
28	ba	ba	ba	a	a	u	u	u	u	b	c	c	b	b	b	u	u	u	270	270	280	c	a	ba	
29																									
30																									
31																									
Median	#	#	(280)	#	#	(290)	(260)	#	#	#	#	#	#	#	#	#	#	#	(295)	280	270	290	280	(290)	(295)
No.			5			8	7												8	17	19	19	12	9	6

HOURLY VALUES OF  $(M3000)F_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	2.6	3.0	2.9	a	a	3.1	3.2	2.8	3.4	3.6	b	3.1	3.4	3.1	3.1	3.0	a	a	a	a	b	a	a	a
2	a	a	a	a	a	a	3.2	c	3.2	b	b	b	b	b	b	2.8	2.9p	3.0	3.2	3.1	3.1	a	a	a
3	a	a	a	2.5	3.1	3.2	3.2	3.5	2.7	3.2	3.0	b	3.1	b	3.1	2.9	3.1	a	a	a	2.8	a	a	a
4	a	a	(2.8)	(3.2)	3.1	3.3	3.5	3.6	2.7	b	3.0	3.0	2.6	c	3.1	b	b	3.1	3.1	3.1	3.3	3.1	a	3.1
5	a	a	a	a	a	b	b	3.2	a	a	2.8	3.2	3.0	3.2	3.1	3.1	3.2	3.1	3.1	3.1	3.3	3.2	3.1	a
6	a	a	3.2	a	a	b	c	2.6	2.8	3.0	3.1	c	3.1	3.2	2.8	3.2	3.0	3.2	3.4	3.1	3.3	3.1	3.3	3.1
7	3.0	b	3.3	b	a	b	3.1	a	3.3	3.3	3.3	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.2	3.3
8	3.1	3.1	ba	ba	b	3.1	3.2	3.1	b	3.2	3.1	a	3.1	3.1	3.2	3.1	3.1	3.1	3.2	3.1	3.2	3.1	3.1	a
9	ba	2.9	3.1	3.6	3.2	3.2	2.9	2.8	2.8	3.1	3.1	c	c	c	c	c	c	c	3.1	3.2	3.0	3.1	3.1	3.1
10	3.1	a	a	a	a	b	a	b	3.1	3.1	3.1	3.3	3.1	3.1	3.0	3.2	3.2	3.2	2.8	3.1	3.0	3.0	a	a
11	a	b	3.2	3.2	a	3.1	3.1	b	b	3.1	2.8	2.9	2.8	3.0	2.6	2.9	3.1	b	3.2	3.0	3.0	2.8	2.9	a
12	b	3.0	3.0	2.8	a	3.0	b	2.8	3.1	3.0	b	b	b	b	3.0	3.1	3.1	3.1	3.0	3.1	3.1	3.1	3.1	3.1
13	a	3.1	b	3.1	b	b	3.5	3.1	3.3	c	3.2	3.1	3.2	3.1	3.1	3.2	3.1	3.3	3.0	a	3.1	a	3.2	a
14	a	a	a	a	3.2	3.1	2.7	b	3.2	3.3	3.2	3.2	3.3	3.2	3.3	3.1	3.2	3.2	3.3	3.2	3.0	a	a	a
15	a	a	a	a	c	c	c	c	c	c	c	3.0	3.2	3.2	3.2	3.1	3.0	a	b	3.2	3.4	3.2	a	a
16	a	a	a	c	c	c	c	c	c	c	c	c	c	c	c	2.6	3.1	3.1	3.2	3.2	3.1	2.9	3.1	a
17	a	a	a	a	a	b	b	b	b	b	b	b	b	b	2.8	b	b	3.1	3.1	a	a	a	a	a
18	a	a	a	a	a	a	b	b	b	b	b	a	b	b	b	2.8	3.0	b	3.3	3.1	a	a	aa	aa
19	a	a	a	a	a	a	a	b	b	b	b	2.8	b	2.5p	b	b	2.8	a	a	a	3.9	a	a	a
20	a	b	b	s	g	g	g	s	a	g	g	g	g	g	g	g	g	2.9	3.1	3.3	3.3	3.1	3.3	3.2
21	3.2	3.1	a	a	a	b	b	b	b	2.9	3.1	3.1	3.2	3.1	s	3.1	3.3	3.2	3.2	3.2	3.2	a	aa	aa
22	a	a	b	s	s	s	s	s	s	s	s	s	s	s	a	2.8	3.1	a	a	a	b	a	a	b
23	a	a	a	a	a	3.1	b	b	b	b	b	b	b	2.9	b	b	3.0	2.8	2.9	3.2	a	a	a	a
24	a	a	a	a	a	a	a	g	g	b	b	g	g	g	g	g	g	3.1	3.2	3.1	3.1	b	a	a
25	a	a	3.2	a	a	a	a	g	g	g	g	s	b	2.7	3.2	2.8	2.8	3.0	3.2	3.2	3.4	3.2	a	aa
26	a	a	c	c	c	c	c	c	c	c	c	c	c	c	c	3.2	c	b	a	a	a	b	b	a
27	a	s	s	s	s	s	s	s	s	s	b	s	s	s	s	s	s	2.8	s	3.2	a	c	c	c
28	ba	ba	ba	a	a	(2.9)	(3.0)	(2.7)	2.7	b	c	c	b	b	b	3.1	3.2	3.2	3.2	3.2	3.1	(2.6)	a	ba
29																								
30																								
31																								
Median	(3.1)	(3.0)	(3.2)	(3.2)	(3.1)	3.1	3.2	2.8	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.1	3.1	3.1	(3.1)
No.	5	6	8	6	5	11	12	12	14	13	15	13	16	17	18	21	22	19	22	20	22	13	10	6

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					a	b	(2.4)	2.8	3.5	3.7	3.9	4.1	4.0	4.1	4.0	3.9f	a	a	a	a	b			
2					a	a	b	3.3p	3.5f	3.7	3.8	(3.8)	3.9	3.8	b	3.8f	3.7fh	3.6f	3.2f	q				
3					a	2.4p	2.6f	3.5	3.6	3.7	3.9	b	4.0	b	3.9	3.9	3.7	a	a	a				
4							2.4	2.7	2.7	2.7	3.9	3.9	4.0	c	4.0	b	b	3.7	3.4f	3.0f				
5					a	3.0	3.4	3.5	a	a	3.9	3.9	4.0	4.0	4.0	4.0	4.0	3.7	3.6	3.8	q			
6					a	b	3.8	3.7	3.9	3.9	c	4.0	4.0	4.0	4.0	4.0	3.7	3.6	3.0	(3.1)				
7					a	2.9	3.2	a	[3.8]	4.0f	4.1p	4.1	4.0	4.0	3.9f	3.9f	3.8	3.7f	3.0	q				
8					2.2f	3.4	3.8	3.8f	4.0	4.0	4.0	a	3.8	4.0	3.9	4.0	3.8	3.5	3.0f	q				
9					q	q	3.3f	3.7f	3.9	4.0	4.0	c	c	c	c	c	c	c	3.6f	3.5f	2.8f			
10					a	b	a	3.5	3.5	3.8	4.0	4.0	4.1f	4.1	4.2	4.0	3.8	3.8f	3.2f	2.6f	q			
11					a	a	a	(3.6)	3.7	3.9	4.0	4.0f	4.0	4.0	4.0	3.9	3.8	b	3.0					
12					a	q	3.5f	3.6f	3.8f	3.8f	3.9f	4.0	b	b	4.0p	3.9b	3.7	3.5	3.0f	q				
13					2.2	3.6	3.2	3.8p	3.8	c	4.0f	4.0f	4.1	4.1	3.9	3.9	3.8f	3.6f	3.5f	a				
14					q	3.1	3.5	4.2	3.8	4.0	4.1	4.2	4.2	4.1	4.1	4.0	3.8	3.7	3.3	q				
15					c	c	c	c	c	c	c	3.8	3.5	3.8	3.8	4.0p	3.5	3.5f	3.1f	q				
16					c	c	c	c	c	c	c	3.8	3.5	3.8	3.8	4.0p	3.5	3.5f	3.1f	q				
17					a	b	b	b	3.5	3.6p	b	b	b	b	b	b	b	3.5f	3.4f	b	q			
18					b	b	b	b	b	b	b	a	b	(3.7)	3.7	3.8p	3.7	3.4f	b	q				
19					a	a	a	b	b	b	3.9	3.9	3.9	3.9	3.9	3.8	3.6	a	a	a				
20					2.4	3.0	3.3	a	a	3.7	3.8	3.7	3.9	3.9	3.9	3.8	3.8p	3.5	3.3	q				
21					a	b	3.3	3.5p	3.6p	3.6	3.9	3.9	4.0	4.0	a	4.0	4.4p	3.5	3.1	b				
22					a	a	a	a	a	a	a	a	a	a	a	3.8	3.7	a	a					
23					a	2.6	b	b	3.5	3.6p	b	b	3.8	b	b	3.7f	3.5	3.4	3.0					
24					a	a	a	3.3	3.5	b	b	3.8	3.7p	3.9	3.8	3.7	3.7	3.5	3.0					
25					a	a	a	3.4	3.5	3.6f	3.7	a	3.9f	4.0	3.9	3.8	3.8	3.5	3.0	q				
26					c	c	c	c	c	c	c	c	c	c	c	3.3f	c	b	a	a				
27					a	a	a	a	a	3.4	a	a	a	a	a	a	3.6f	a	3.1f					
28					a	3.0	3.3	c	3.7	b	c	c	b	b	b	3.7	3.6	3.8	2.9f	a				
29																								
30																								
31																								
Median					*	3.0	3.3	3.6	3.6	3.7	3.9	4.0	4.0	4.0	3.9	3.9	3.7	3.5	3.1	3.0	*			
No.						9	14	16	19	18	20	16	19	19	19	23	22	19	21	5				

8a.

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					a	b	a	200	220	220	200	200	240	210	200	190	a	a	a	a	b			
2					a	a	b	260	230	230	200	c	c	220	b	190	200	230	240	q				
3					a	240	220	220	200	200	200	b	220	b	220	240	1	a	a	a				
4							220	220	220	220	200	220	220	c	220	b	b	220	230	240				
5					a	240	240	230	a	a	220	200	180	200	180p	230	200	230	220	q				
6					a	b	250	230	200	200	190	c	200	200	190	210	200	220	200	250				
7					a	240	230	a	220	210	b	200	200	200	200	200	220	240	220	q				
8					250	230	230	210	b	210	200	a	250	230	220	220	230	220p	220p	q				
9					q	q	230	220	220	220	210	c	c	c	c	c	c	c	220	210	250			
10					a	b	a	250	230	230	220	200	200	200	200	220	230	220	250	250	q			
11					a	a	a	(220)	200	210	200	220	200	220	230	210	a	b	250					
12					a	q	250	220	230	210p	200	220	b	b	c	230p	220	230	240	q				
13					250	230	230	200	200	c	200	200	200	200	200	220	200	230	220	a				
14					q	240	230	200	220	220	200	230	190	200	190	190	210	230	230	q				
15					c	c	c	c	c	c	c	200	210	200	200	210	a	b	b	b				
16					c	c	c	c	c	c	c	b	200	240	220	240	[170]	240	230	q				
17					a	b	b	b	200	220	b	b	b	b	220	b	b	240	250					
18					b	b	b	b	b	b	b	a	b	210	220	c	200	220	b	q				
19					a	a	a	b	b	b	200	200	190	200	180	200	200	a	a	a				
20					240	200	220	a	a	200	210	200	180	200	200	180	200	200	200	q				
21					a	b	220	210	210	210	200	190	200	180	a	200	200	220	220	b				
22					a	a	a	a	a	a	a	a	a	a	a	200	230	a	a					
23					a	250	b	b	240	250	230	b	b	200p	b	b	230	210p	250	250				
24					a	a	a	240	230	b	b	b	220	200	190	200	200	b	230					
25					a	a	a	230	220	210	200	a	220	200	190	200	200	220	c	q				
26					c	c	c	c	c	c	c	c	c	c	c	200	c	b	a	a				
27					a	a	a	a	a	200	a	a	a	a	a	a	200	a	270					
28					a	250	230	c	230	b	c	c	b	b	b	220	200	220p	220	a				
29																								
30																								
31																								
Median					*	240	230	220	220	210	200	200	200	200	200	205	200	220	230	250	*			
No.						9	13	16	18	18	19	13	18	19	19	22	20	18	20	5				

8b.

HOURLY VALUES OF  $f_oE$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5 Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					a	a	2.0	2.0	2.5	3.0	2.9	3.0	3.0	3.0	3.2	3.0	b	2.0	2.0	a				
2					b	a	2.2	2.0	2.0	b	2.0	2.0	2.0	3.0	b	3.1	2.9	2.7	2.0	2.0f				
3					a	1.9	2.2f	2.2f	2.5	2.5	2.6	b	3.0	b	3.0	2.3	2.5	2.6	b	2.2p				
4					a	1.5	2.0	2.0	3.0	3.0	3.0	3.1	3.3	c	3.0	b	b	2.5	2.1h	1.8f				
5					b	1.9	2.1f	2.6	2.6	2.8	3.0	3.0	3.2	3.2	3.1	3.3	2.8	2.5	2.1	1.7				
6					a	a	a	2.8	2.7	2.9	2.9	c	3.2	3.2	3.1	2.9	2.7f	2.6f	2.6f	1.7f				
7					a	(2.0)	2.0	2.1	2.5	2.7	2.8	3.0	3.0p	2.7p	2.7f	3.0f	2.7f	2.4f	2.0	a				
8					b	2.0	2.4	2.6	a	2.9	3.0	a	3.0p	3.2	3.2	2.9	2.9	2.6	1.9f	2.1p	2.1p			
9					a	a	2.1f	2.2f	2.8	3.0	3.1	c	c	c	c	c	c	c	2.6	2.5				
10					a	a	b	2.1	2.6	2.8	2.9	3.0	3.0	3.2	3.1	3.0	2.8	2.6f	2.2f	1.7f				
11				1.9f	2.1f	2.2	2.1f	2.4	2.6	2.7	3.0	3.0	3.0	3.1	3.1	3.0f	[2.6]	b	2.0f	1.7p				
12					a	2.0	2.2f	2.6f	2.8f	b	2.9	3.2	b	b	b	3.3f	2.6	2.4	2.0f	a				
13					a	(1.7)	2.3f	2.4f	2.7f	c	3.2	3.1f	3.1	3.4	3.1	3.0	2.7f	2.7f	2.0f	a				
14					b	1.8	2.2	2.2f	2.2	2.9f	3.1f	2.9	3.2	2.8	2.5	2.0	2.4	2.4	2.1	a				
15					c	c	c	c	c	c	2.1f	2.2	2.2	2.2	2.2f	2.9	b	b	2.1f	a				
16					c	c	c	c	c	c	c	c	b	3.0	2.4f	2.2f	b	2.4f	2.5f	2.0f	a			
17					b	b	b	b	b	b	b	b	b	b	3.1f	b	b	2.7						
18					a	a	b	b	b	b	b	b	b	b	3.1p	b	b	2.7	2.6f	b	2.0			
19					a	b	b	b	b	g	(3.0)	3.0	3.3	3.3	3.0	2.8	2.7	a	a	a				
20					b	a	2.5	a	a	3.0	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.4	2.1	b				
21					a	b	2.0	2.4	2.6	2.7	3.0	3.0	3.0	3.0	3.0	a	2.9	3.1	a	b	b			
22					a	a	a	a	a	a	a	a	a	a	a	b	b	2.7	2.5					
23					a	a	b	b	b	2.9p	3.0	b	b	b	b	b	2.7	2.5p	2.5	2.1f				
24					a	b	b	2.4	2.6	b	b	b	b	b	2.9	2.7	2.7	2.4	2.2	2.0f				
25					b	b	b	b	b	2.8f	2.9	a	b	3.0	2.9	2.9	2.5f	2.4	a	a				
26					c	c	c	c	c	c	c	c	c	c	c	2.4f	c	b	a	a				
27					a	a	a	a	a	b	bs	bs	bs	bs	bs	bs	2.2f	bs	2.1f					
28					a	2.1f	2.5	2.6	b	b	c	c	b	b	bs	2.9	2.5	b	(2.0)	a				
29																								
30																								
31																								
Median				*	*	2.0	2.2	2.4	2.6	2.9	3.0	3.0	3.0	3.0	3.0	2.0	2.7	2.5	2.1	2.0	*			
No.						10	15	17	15	16	20	14	17	17	18	20	22	20	20	12				

HOURLY VALUES OF  $h' E$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

157.5 Mean Time

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

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

137.5°E Mean Time

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	4.2	4.5h	3.4	5.0	2.7	2.5	2.2	2.1	2.7	g	g	g	3.9	3.6	g	g	3.4	4.0	7.0	5.6h	e	5.3	6.8	5.3	
2	4.5	5.4	3.5	4.4	g	3.5	3.3	3.0	3.2	3.2	3.4	3.6	3.5	3.1	g	4.0	4.5	3.0	g	4.0	4.3	5.3h	e	4.5	
3	5.1	3.1	4.0	3.2	4.0	2.3f	g	2.7	6.5	2.9	b	b	3.1	b	3.5	4.1	8.0	8.0	5.3	7.0	6.0h	9.0	6.2h	5.4h	
4	4.3m	4.7h	3.2m	2.0	1.6	1.9	g	2.2	2.7	g	3.5	b	4.0	o	3.2	g	g	g	2.2	2.1	3.0	5.3f	6.5	3.0f	
5	3.7f	3.0	3.2	2.6f	g	2.5	g	2.9	5.0	4.0	3.6	3.7	3.3	g	g	g	g	3.0	2.7	g	a	2.5f	5.2f	7.5	
6	6.5	4.8	2.4	2.7	3.0	3.0f	2.8f	3.0	2.7	3.0	3.5	o	3.4f	3.3	g	g	g	2.8	3.0	2.4f	2.7	2.3	4.5	4.6	
7	4.3	4.4	4.0	3.2	4.1	2.2	2.7	5.1	6.5	4.8	5.7	3.7	5.0	4.2	4.2	g	g	2.8	2.5	4.5	3.5	b	6.7	e	
8	e	e	e	e	g	2.3f	g	3.0f	3.7	4.5	a	g	g	g	g	g	3.2	5.2	3.8	4.0	3.5	3.5f	3.2		
9	a	3.2f	3.1f	3.2f	3.0f	2.7f	2.4f	2.3f	2.9	g	3.4	o	o	o	o	o	o	o	2.6	g	2.0f	4.7	e	4.7h	
10	4.2f	3.7f	4.4f	3.0	3.5	4.2	g	2.2	g	2.8	b	3.5	4.2	g	3.1	g	2.9	2.8	g	g	3.2	5.0	5.8	5.8	
11	4.3	2.7	3.5	2.4	3.9	3.0	2.2	g	2.8	3.0	3.4	3.5	g	g	3.0	3.0	8.0	g	6.5	2.7	2.4	3.8	8.0h	8.6	
12	3.8	2.9f	2.7	4.7	3.4	2.4	2.7f	2.9	3.0	3.5	3.4	b	b	b	b	b	2.8	5.2	g	2.3f	4.0	2.2	5.4	7.8f	
13	4.0f	2.3f	2.4	2.8	2.3	2.4	2.2f	g	2.7	o	g	g	g	g	g	3.0	2.8	2.5p	3.2f	4.0	5.0f	6.0	6.0f	5.5	
14	4.7	4.4	4.0f	3.0f	1.5p	2.7	3.3	4.2	2.9	g	g	3.4	g	3.4	3.0	2.3	2.7	g	2.6	4.0	g	5.0f	5.2	4.6	
15	4.0	4.1f	3.5	5.5	o	o	o	o	o	o	2.8	3.0	3.0	3.0	2.9	g	4.0	g	2.8	2.6f	2.5f	5.2f	5.0f	5.2f	
16	4.5	2.9	2.7f	o	o	o	o	o	o	o	o	3.0	(2.9)	3.0	g	g	2.9	2.9f	3.1f	3.5f	4.6	3.6	2.6	6.5	
17	4.5	3.0	3.0	4.0	3.0	2.7	b	b	b	b	b	b	b	b	b	b	b	5.0	2.8	4.4	6.4	5.4	4.5	5.0f	
18	5.1	b	3.3	4.0f	3.7	g	g	g	g	g	g	g	g	g	g	g	2.8f	2.6f	g	3.5	4.0f	5.1	6.0	4.5	
19	4.2f	3.8	2.9	3.2	4.3	2.9	2.8	g	g	g	g	g	g	g	g	g	4.1	5.0	4.0	4.2	4.3	3.2	5.2		
20	5.0	e	3.0	e	g	3.0	g	a	a	3.5	g	3.4	g	g	3.5	g	2.9	g	g	g	2.4	2.7	3.7	4.4f	
21	3.1	3.2	3.4	3.2	2.0	g	2.5	g	g	g	3.1	3.2	g	g	a	g	3.4	a	g	g	5.3	4.4	5.0f	4.0f	
22	4.4	3.4	e	e(a)	4.4p	g	g	2.5	a	a	a	a	a	a	a	4.3	b	2.7	5.3	5.5	5.1	b	4.3	3.8	3.5
23	4.3f	2.7	4.2f	2.5f	2.9f	2.0	g	g	g	g	g	g	g	g	g	3.0	3.5	g	2.1	4.2f	4.3	5.0f	4.5		
24	4.5	4.5	4.5	e	2.9f	g	g	g	g	b	b	b	b	b	b	b	3.4	2.5	3.3f	2.5f	4.2f	4.5	4.5	4.4	
25	3.5	3.0	3.0	2.2f	2.2f	g	g	g	g	g	g	a	g	g	g	g	2.8f	g	3.8	5.3f	5.0	3.3	4.5	4.3	
26	4.5	4.5	o	o	o	o	o	o	o	o	o	o	o	o	o	g	o	g	5.3	(6.0)	4.2	g	g	4.1	
27	4.5	4.5	5.0	a	a	a	a	a	a	a	a	a	a	a	a	a	3.0	a	4.1	5.5	o	o	o	o	
28	a	a	a	4.2	3.6	g	2.5	2.8	3.3	g	o	o	g	g	g	g	3.0	g	3.7	a	3.3	4.3	4.2f	4.4	
29																									
30																									
31																									
Median	4.4	3.6	3.2	3.0	3.0	2.4	2.2	2.2	2.7	2.8	3.1	3.2	**	**	**	**	2.8	2.8	2.8	3.5	3.8	4.4	5.0	4.6	
No.	26	26	26	25	24	24	23	22	21	20	29	15	21	19	20	22	24	25	28	27	26	26	27	26	

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING FEBRUARY 1954 AT MACQUARIE ISLAND

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

137.5°E Mean Time

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	100	100	100	100	100	100	120	g	g	g	120	120	g	g	(90)	110	100	100	e	110	100	100	
2	100	100	100	100	g	90	120	100	120	120	100	100	100	120	g	120	120	120	g	110	100	100	a	90	
3	100	90	80	100	80	100	b	140	90	100	b	b	110	b	130	130	120	120	110	120	110	100	100	100	
4	100	100	110	110	90	120	g	100	120	g	110	b	110	o	130	g	g	g	g	120	120	100	120	100	120
5	100	100	100	110	g	120	g	140	120	100	120	100	110	g	g	g	g	150	130	g	e	150	100	100	
6	100	100	100	100	100	100	90	120	120	140	110	o	110	100	g	g	g	130	110	150	150	100	100	100	
7	100	100	100	100	100	100	100	100	100	100	110	110	110	100	100	g	g	140	130	120	110	b	100	e	
8	e	e	e	e	g	140	g	g	110	120	120	a	g	g	g	g	g	130	120	120	120	120	130	120	
9	(100)	100	100	100	100	100	140	120	140	g	140	o	o	o	o	o	o	o	140	g	140	130	a	110	
10	120	100	120	100	90	90	g	90	g	120	b	120	120	g	120	g	120	150	g	g	100	120	120	100	
11	100	100	150	130	120	120	120	g	150	120	120	120	g	g	120	150	130	g	140	130	150	110	120	100	
12	100	130	120	100	100	100	110	140	120	100	120	b	b	b	b	b	130	120	g	120	130	120	110	100	
13	100	100	100	100	100	100	100	g	120	o	g	g	g	g	g	110	100	100	120	120	100	100	100	100	
14	90	100	100	100	100	100	100	100	120	g	g	120	g	100	180	120	120	g	130	130	g	120	100	100	
15	100	100	100	100	o	o	o	o	o	o	120	110	110	110	120	g	100	g	120	120	110	100	100	90	
16	90	100	100	o	o	o	o	o	o	o	o	o	o	o	50	g	g	a	140	120	110	110	100	100	
17	100	90	90	100	100	100	b	b	b	b	b	b	b	b	b	b	b	130	140	100	110	100	100	100	
18	100	b	90	100	100	g	g	g	g	g	g	g	g	g	g	g	g	160	160	g	120	120	100	90	100
19	90	80	80	100	80	80	80	g	g	g	g	g	g	g	g	g	g	g	100	100	100	100	100	90	100
20	80	e	80	e	g	100	g	a	a	100	g	120	g	g	100	g	120	g	g	g	120	100	100	100	
21	100	90	100	100	100	g	110	g	g	g	120	110	g	g	a	g	120	a	g	g	100	100	90	90	
22	100	80	e	e	100	g	g	90	a	a	a	a	a	a	a	100	b	100	100	100	100	b	90	100	100
23	90	100	90	90	100	100	g	g	g	g	g	g	g	g	g	g	150	100	g	150	100	100	100	100	
24	100	100	90	e	100	g	g	g	g	b	b	b	b	b	b	b	b	120	130	120	110	100	100	100	
25	90	90	100	100	100	g	g	g	g	g	g	a	g	g	g	g	100	g	130	110	110	150	120	100	
26	100	100	o	o	o	o	o	o	o	o	o	o	o	o	o	g	o	g	110	100	100	g	g	100	
27	80	80	80	a	a	a	a	a	a	a	a	a	a	a	a	a	130	a	100	100	o	o	o	o	
28	a	a	a	90	100	g	140	140	130	g	o	o	g	g	g	g	130	g	160	a	100	100	100	ea	
29																									
30																									
31																									
Median	100	100	100	100	100	100	110																		

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

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

157.5<sup>03</sup> Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	2.3	g	g	(4.2)	(4.5)	4.4	4.5	4.8	4.6	5.0	4.9	(4.6)	4.6	(4.9)	(5.2)	(4.6)	3.4f	(2.6)	a
2	b	s	s	s	a	2.1	3.2	3.9f	4.1	4.5	4.8	5.2	4.8f	4.9	4.8	5.2	5.5	3.8f	f	3.7	[2.2]	a	a	2.0
3	a	a	a	a	a	a	a	a	a	a	a	a	a	5.5	5.5	5.5	5.5	5.7p	4.7p	a	a	a	a	a
4	a	a	a	a	[2.6]	2.6f	2.8	c	a	a	a	a	5.0	4.5	5.1p	4.6	5.1	4.6	4.2	4.8p	a	a	a	a
5	a	a	2.3f	1.8f	(1.6)	2.0	g	g	3.8	3.9	4.3	4.3	3.9	5.0f	4.5f	4.0f	3.8f	a	a	a	a	b	a	a
6	a	a	1.8f	a	2.8	g	g	3.9	3.9	4.2	4.3	4.4	4.4	4.5	4.5f	4.9f	a	4.9	4.1f	3.5f	3.1	3.2	3.8	
7	2.6	2.2p	2.1	1.9p	1.8	2.0	g	g	4.5p	4.2p	4.5	4.5	4.5	4.5	4.8	5.0	4.9f	5.1	4.7	4.1f	a	a	a	a
8	a	a	a	a	a	a	g	g	4.0	b	b	4.2	4.2	4.4	4.4	4.3	b	4.5	4.3	4.6	1.7f	2.2f	a	a
9	a	a	1.8	a	a	a	2.4	[4.0]	4.1	4.2	4.6	4.6	4.5	4.5	4.6	4.7	a	a	a	a	a	a	a	a
10	a	a	a	a	a	b	b	b	g	g	g	g	4.1	4.2	4.2	4.3	4.3	4.2	4.3	a	a	3.0f	2.5f	a
11	a	a	a	a	1.9	1.7f	2.4	g	4.0	4.3	4.5	5.2	4.2	4.6	4.6	5.2	b	4.1	a	a	a	b	a	a
12	a	a	a	a	(1.9)	a	b	b	3.7	b	b	4.3	4.5	4.5p	4.6	4.5	4.5	a	3.3f	1.9	2.8f	3.1f	2.2f	a
13	a	a	a	a	a	a	2.8	g	g	g	4.0	4.3	4.5	4.3	4.5	4.4	4.5	4.1	4.3	4.5	4.2f	3.0	2.0	a
14	a	a	a	a	a	b	b	b	a	3.5	3.8	4.2	4.3	4.4	4.6	b	4.0f	a	a	a	a	a	a	a
15	a	b	b	b	b	b	b	b	b	b	g	g	b	b	4.1	4.1f	b	4.0f	a	2.8f	a	a	a	a
16	a	b	a	a	b	b	b	b	b	b	4.3	a	a	a	a	a	a	a	a	a	a	a	a	a
17	b	b	a	a	a	b	b	b	b	b	4.3	4.2	4.5	4.7	4.7	4.7f	4.5f	5.0f	5.1f	a	3.4f	(2.4)	a	1.8f
18	a	2.6f	b	a	a	a	b	b	g	4.0	4.3	4.5	b	5.3f	5.8f	5.3f	4.0f	3.7f	3.6f	2.8f	a	a	a	a
19	a	a	a	a	a	a	b	3.3	g	3.9	4.0f	4.1f	4.3f	4.3	4.4	4.5	4.3	4.4	4.6	4.6	3.5p	2.4f	a	3.2f
20	a	b	b	a	2.8	b	a	g	3.9	4.1f	4.5f	4.6	4.5	4.8	5.2	4.9	4.9f	5.0f	4.6f	3.9f	3.5f	3.1f	a	a
21	a	2.0f	2.0f	a	a	b	b	g	3.7	4.1	4.3	b	b	4.5p	4.4	4.3	4.3	4.1f	4.0f	3.5f	3.6f	a	a	a
22	a	a	a	a	a	b	b	g	4.0	4.2	4.5	4.8	5.0	b	4.9	a	a	a	a	a	3.6f	a	a	2.7p
23	a	a	a	a	a	a	3.0f	b	b	b	4.0f	a	g	b	b	5.6	5.5f	4.8p	a	a	a	a	a	a
24	s	s	s	a	a	a	s	s	s	3.8f	b	b	b	6.7	5.4f	5.2f	5.8	5.2	b	a	a	a	a	a
25	b	a	a	a	a	b	b	g	g	b	4.1	4.9	5.1	b	b	[6.2]	5.0f	5.0	3.8	4.0	3.0f	2.7f	b	a
26	a	a	a	a	a	a	b	b	3.7	3.9	g	4.1	4.1	4.3	4.3	4.3	4.3	b	3.6p	a	[3.0]	a	a	b
27	b	a	a	b	b	a	2.3	b	b	3.9	4.2	4.3	4.7	b	5.2	b	4.7	4.7	3.4f	b	a	a	a	a
28	1.8	a	b	b	b	b	2.6	3.5	3.8	4.3	4.7	5.0	5.0	5.0	5.0	4.8	4.8	5.0	5.3	4.2f	[3.2]	3.5	a	3.0f
29	3.0f	2.9p	2.0	a	a	a	2.5	g	4.8	5.2	5.5	6.0	5.5	5.5	5.5	5.7	5.5	5.4	4.9	4.7f	3.9f	2.9f	2.8f	(2.9)
30	a	a	a	2.0	1.6f	b	2.1	3.5	4.0	4.0	4.3	4.6	5.0	4.9	5.0f	5.0	5.0	4.2	4.7p	3.8f	2.7f	2.4f	2.0f	a
31	a	a	a	3.1f	2.7f	1.8f	2.1f	3.1	a	4.1	4.1	4.0	4.0	4.1	4.1	3.9	3.9f	4.0	3.0	a	1.9f	a	a	a
Median	*	*	(2.0)	*	(1.9)	(2.0)	2.3	g	3.8	4.1	4.3	4.4	4.5	4.6	4.6	4.8	4.8	4.6	4.6	4.0	3.4	3.0	(2.5)	(2.9)
No.	3	4	6	4	9	8	17	17	22	22	26	24	25	26	27	29	24	23	21	18	17	13	7	7

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

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

157.5<sup>03</sup> Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	270	g	g	350	310	390	370	330	300	320	280	280	(260)	230	230	230	230	240	(250)	
2	b	s	s	s	a	250	220	230	1	330	360	290	300	320	370	380	250	250	f	300	[590]	a	a	350	
3	a	a	a	a	a	a	a	a	a	a	a	a	a	a	290	280	300	280	280	230	(250)	(250)	(300)	a	a
4	a	a	a	a	a	350	300	250	a	a	a	a	a	400	370	370	330	290	290	270	370	a	a	a	
5	a	a	250	200	a	250	g	g	450	430	350	380	350	300	330	300	280	a	a	a	a	b	a	a	
6	a	a	340	a	260	w	w	450	500	450	400	390	370	400	360	300	320	a	250	240	290	290p	310p	350	
7	300	260	250	280	300	350p	g	g	350	400	370	340	360	370	320	300	270	270	270	250	a	a	a	a	
8	a	a	a	a	a	a	g	g	g	450	b	b	450	450	390	450	b	350	270	250	250	340	a	a	
9	a	a	300	a	a	a	250	500	400	350	340	340	370	370	300	300	a	a	a	a	a	a	a	a	
10	a	a	a	a	a	b	b	b	g	g	g	g	430	400	450	400	370	320	295	a	a	270	270	a	
11	a	a	a	a	a	350p	350p	300	g	350	340	370	320	330	340	380	330	b	290	a	a	a	b	a	a
12	a	a	a	a	a	a	b	b	480	b	b	400	340	370	330	330	330	a	430	330	300	250	240	a	
13	a	a	a	a	a	a	300	g	g	g	450	420	340	450	380	350	300	300	250	250	170	230	250	a	
14	a	a	a	a	a	a	b	b	b	a	250	350	450	400	450	370	b	400	a	a	a	a	a	a	
15	a	b	b	b	b	b	b	b	b	b	b	g	g	b	b	470	400	b	370	a	330	a	a	a	
16	a	b	a	a	a	b	b	b	b	b	g	b	350	a	a	a	a	a	a	a	a	a	a	a	
17	b	b	a	a	a	b	b	b	b	b	b	340	350	420	330	380	340	290	280	240	a	220	250	a	300p
18	a	400	b	a	a	a	b	b	g	420	380	380	b	350	300	300	300	270	290	330	a	a	a	a	
19	a	a	a	a	a	a	a	b	(250)	g	440	430	500	370	380	350	330	290	250	250	230	250	230p	a	300
20	a	b	b	a	290	b	a	g	330	370	360	370	380	360	340	310	280	240	250	350	250	340	a	a	
21	a	300	300	a	a	b	b	g	380	390	380	b	b	450	400	370	320	270	250	270	300	a	a	a	
22	a	a	a	a	a	b	b	g	(330)	320	350	330	300	b	330	300	a	a	a	a	320	a	a	300	
23	a	a	a	a	a	a	550	b	b	b	580	a	g	b	b	270	240	1	a	a	a	a	a	a	
24	s	s	s	a	a	a	s	s	s	490	b	b	b	280	250	270	270	230	b	a	a	a	a	a	
25	b	a	a	a	a	b	b	g	g	b	480	340	320	b	b	[300]	250	250	250	330	300	330	b	a	
26	a	a	a	a	a	a	b	b	350	380	g	430	450	350	350	330	370	b	340	a	320	a	a	b	
27	b	a	a	a	b	a	1	b	b	b	480	400	390	360	b	280	b	270	270	260	a	a	a	a	
28	280	a	b	b	b	b	250	330	280	290	270	300	300	300	290	270	270	250	240	220	250	250	a	270	
29	260	260	300	s	s	s	250	g	240	230	280	250	270	260	250	230	240	240	200	240	240	230	250	[350]	
30	a	a	a	400	290	b	250	240	260	330	330	350	330	310	300	270	270	230	230	230	250	270	a	a	
31	a	a	a	280	250	250	300	250	a	380	420	400	380	350	300	300	b	280	300	a	330p	a	a	a	
Median	*	*	(300)	*	(290)	(285)	300	g	400	380	375	375	370	355	340	300	280	270	250	250	250	260	(250)	(300)	
No.			6		7	8	16	17	21	22	26	24	25	26	27	29	23	22	21	19	18	14	6	8	



HOURLY VALUES OF  $f_p F_2$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND.

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

-157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	270	g	g	u	u	u	u	u	u	u	u	u	270	270	260	260	250	270	a	
2	b	a	a	a	a	280	270	250	u	u	u	u	u	u	u	u	u	280	280	270	a	a	a	a	
3	a	a	a	o	o	o	o	o	o	o	o	o	o	u	u	u	u	280	280	270	a	a	a	a	
4	a	a	a	a	u	u	270	o	o	o	o	o	u	u	u	u	u	290	270	u	a	a	a	a	
5	a	a	250	u	o	280	g	g	u	u	u	u	u	u	u	u	280	a	a	a	a	b	a	a	
6	a	a	340	a	280	w	w	u	u	u	u	u	u	u	u	u	a	280	260	300	310	320	350		
7	300	260	260	280	u	370	g	g	u	u	u	u	u	u	u	u	u	280	280	270	a	a	a	a	
8	a	a	a	a	a	a	g	g	g	u	b	b	u	u	u	u	u	u	270	270	u	350	a	a	
9	a	a	310	a	a	a	260	u	u	u	u	u	u	u	u	u	a	a	a	o	o	o	o	o	
10	a	a	a	a	b	b	b	b	g	g	g	g	u	u	u	u	u	u	300	a	a	300	280	a	
11	a	a	a	a	u	u	u	g	u	u	u	u	u	u	u	u	u	b	u	a	a	a	b	a	
12	a	a	a	a	a	a	b	b	u	b	b	u	u	u	u	u	u	u	u	330	300	290	240	a	
13	a	a	a	a	a	a	b	g	g	g	u	u	u	u	u	u	u	300	280	300	270	250	260	a	
14	a	a	a	a	a	b	b	o	u	u	u	u	u	u	u	u	u	a	a	a	a	a	a	a	
15	a	b	b	b	b	b	b	b	b	b	g	g	b	b	u	u	b	u	a	330	a	a	a	a	
16	a	b	a	a	b	b	b	b	g	b	u	o	o	o	o	o	o	o	o	o	o	o	o	a	
17	b	b	a	a	a	b	b	b	b	b	u	u	u	u	u	u	290	290	270	a	280	280	a	300	
18	a	400	b	a	a	a	b	b	g	u	u	u	b	u	300	300	u	280	290	340	a	a	a	a	
19	a	a	a	a	a	a	b	u	g	u	u	u	u	u	u	u	290	270	280	270	300	270	a	320	
20	a	b	b	a	290	b	a	g	u	u	u	u	u	u	u	310	300	250	275	370	250	350	a	a	
21	a	u	u	a	a	b	b	g	u	u	u	b	b	u	u	u	u	270	270	310	350	a	a	a	
22	a	a	a	a	b	b	g	b	u	u	u	u	u	b	u	300	o	o	o	o	400	a	a	300	
23	a	a	a	a	a	a	u	b	b	b	u	o	h	b	b	270	250	u	a	a	a	a	a	a	
24	a	a	a	a	a	a	a	a	a	u	b	b	b	280	u	270	280	240	b	a	a	a	a	a	
25	b	a	a	a	a	b	b	g	g	b	u	u	u	b	b	300	250	270	280	u	300	350	b	b	
26	a	a	a	a	a	a	b	b	u	u	g	u	u	u	u	u	u	b	350	a	320	a	a	b	
27	b	a	a	b	b	a	u	b	b	b	u	u	u	u	b	280	b	290	280	300	a	a	a	a	
28	320	a	b	b	b	b	280	u	u	u	u	u	u	u	u	280	300	280	270	250	280	290	a	330	
29	340	330	300	a	a	a	270	g	240	230	280	250	270	260	250	240	250	250	240	250	270	250	300	350	
30	a	a	a	o	o	o	260	245	260	u	u	u	u	u	u	u	270	280	240	270	250	290	280	a	
31	a	a	a	280	290	260	300	270	o	u	u	u	u	u	u	u	u	b	320	330	a	340	a	a	
Median	*	*	(300)	*	*	(280)	300	g	(g)	*	*	*	*	*	*	*	280	280	275	280	290	300	290	(275)	(325)
No.			5			6	13	13	9								11	12	18	20	16	15	13	6	6

HOURLY VALUES OF  $(M3000)F_2$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND.

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

-157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	3.3	g	g	3.1	(3.3)	3.1	3.0	3.2	3.3	3.2	3.5	3.3	3.2	3.3	3.2	3.1	3.2	3.1	a	
2	b	a	a	a	a	3.2	3.2	2.9	2.7	3.2	3.0	3.2	3.0	3.1	2.8	2.7	3.4	3.1	2.8	o	a	a	a	3.1	
3	a	a	a	o	o	o	o	o	o	o	o	o	o	3.4	3.3	3.2	3.3	3.3	3.3	3.3	3.3	3.3	a	a	
4	a	a	a	a	3.1	3.1	3.3	o	o	o	o	o	2.9	3.1	3.1	3.1	3.3	3.2	3.2	3.0	a	a	a	a	
5	a	a	3.1	o	o	3.2	g	g	2.7	2.8	3.1	3.0	3.1	3.1	3.1	3.1	3.2	a	a	a	a	b	a	a	
6	a	a	3.2	a	3.2	g	g	2.6	2.7	2.8	3.0	3.0	3.0	3.1	3.1	3.1	3.2	a	a	a	a	a	a	a	
7	3.3	3.1	3.1	3.1	3.2	2.7	g	g	3.0	3.2	3.0	3.2	3.1	3.0	3.1	3.3	3.1	3.2	3.3	3.2	a	a	a	a	
8	a	a	a	a	a	a	g	g	2.7	b	b	2.7	2.7	2.9	2.7	b	3.0	3.3	3.2	3.2	3.1	a	a	a	
9	a	a	3.1	a	a	a	3.3	(2.5)	2.8	3.0	3.1	3.1	3.0	3.1	3.2	3.2	a	a	a	o	o	o	o	o	
10	a	a	a	a	a	b	b	b	g	g	g	g	2.7	2.8	2.9	2.7	3.0	3.1	3.1	a	a	3.0	3.1	a	
11	a	a	a	a	a	2.8	3.1	3.4	g	3.1	3.1	3.0	3.2	3.1	3.1	2.8	3.1	b	2.7	a	a	a	a	a	
12	a	a	a	a	(3.4)	a	b	b	2.7	b	2.7	3.1	3.0	3.1	3.0	3.1	3.2	3.0	a	2.7	3.1	3.1	3.0	3.3	a
13	a	a	a	a	a	a	3.2	g	g	g	2.7	2.7	3.1	2.8	2.8	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.3	3.2	a
14	a	a	a	a	a	b	b	b	o	3.4	3.1	2.7	2.9	2.6	2.9	b	2.8	a	a	a	a	a	a	a	
15	a	b	b	b	b	b	b	b	b	b	g	g	b	b	2.6	2.8	b	2.9	a	3.1	a	a	a	a	a
16	a	b	a	a	b	b	b	b	g	b	3.1	o	o	o	o	o	o	o	o	o	o	o	o	o	a
17	b	b	a	a	a	b	b	b	b	b	3.2	3.2	2.8	3.2	2.8	3.0	3.1	3.2	3.2	a	3.1	3.1	a	3.1	a
18	a	2.8	b	a	a	a	b	b	g	2.7	3.0	2.9	b	2.9	3.0	3.1	3.1	3.1	3.1	3.1	3.0	a	a	a	a
19	a	a	a	a	a	a	b	3.2	g	2.8	2.8	2.6	2.9	2.9	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	a
20	a	b	b	a	3.1	b	a	g	3.2	2.8	2.9	3.0	2.9	2.9	3.0	3.1	3.1	2.9	3.1	2.8	3.3	3.0	a	a	
21	a	3.3	3.2	a	a	b	b	g	2.9	2.8	2.9	b	b	2.7	2.8	3.0	3.1	3.2	3.3	2.8	2.8	a	a	a	
22	a	a	a	a	a	b	g	b	3.1	3.1	3.1	3.1	3.2	b	3.0	3.1	o	o	o	o	(2.7)	a	a	2.8	
23	a	a	a	a	a	a	[2.5]	b	b	[2.4]	o	g	b	b	3.5	3.5	3.5	3.5	a	a	a	a	a	a	
24	a	a	a	a	a	a	a	a	a	2.6	b	b	b	3.3	3.6	3.2	3.5	3.5	b	a	a	a	a	a	a
25	b	a	a	a	a	b	b	g	g	b	2.7	3.0	3.1	b	b	3.2	3.3	3.5	3.1	3.1	3.2	2.9	b	a	
26	a	a	a	a	a	a	b	b	3.1	3.0	g	2.8	2.7	3.0	3.1	3.1	2.7	b	2.8	a	2.9	a	a	b	
27	b	a	a	b	b	a	3.1	b	b	b	2.6	2.8	2.8	3.0	b	3.2	b	3.1	3.0	3.1	a	a	a	a	
28	3.1	a	b	b	b	a	3.2	3.2	3.4	3.2	3.3	3.2	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	2.8	a	2.8	
29	2.9	2.9	2.9	a	a	a	3.3	g	3.5	3.6	3.3	3.5	3.2	3.3	3.5	3.6	3.5	3.4	3.6	3.2	3.2	3.1	3.1	3.1	
30	a	a	a	3.2	3.2	b	3.4	3.5	3.5	3.1	3.1	3.0	3.1	3.1	3.1	3.4	3.2	3.4	3.6	3.4	3.0	3.1	2.9	a	
31	a	a	a	2.9	3.1	3.3	3.1	3.3	o	2.9	2.8	2.8	2.9	3.1	3.1	3.1	[2.8]	3.0	3.0	a	2.9	a	a	a	
Median	*	*	(3.1)	*	(3.2)	(3.2)	3.1	g	2.8	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	(3.1)	(3.1)	
No.			6			8	8	17	17	22	22	26	24	25	26	27	29	24	23	21	18	16	13	7	7

HOURLY VALUES OF  $f^oF_1$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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						q	3.3	3.6	(3.7)	3.9	3.8	3.8	4.0	4.0	4.0	3.8	3.8	3.3	q					
2								q	3.8	3.8	4.0	4.1	4.0	4.0	3.8	4.0	4.0	3.0p	f					
3					a	a	a	a	a	a	a	a	a	4.0	4.1	4.0	3.9	3.6	q					
4								q	3.1	3.3	3.6	3.7	3.8	3.8	3.4	3.7	3.5	a	a	a	a			
5						q	3.3	3.7	3.7	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.6	3.7p	a	q				
6						q	3.0	3.6	4.0	3.9	3.9	3.9	3.9	3.9	3.9	3.8	3.5	3.6	3.5					
7						q	2.9	3.4	3.5	3.6	b	b	4.0	4.0	3.9	3.8	b	3.8	b	q				
8								q	3.8	3.6	3.9	4.0	3.9	3.9	3.9	3.7	a	a	a	a				
9					b	b	b	b	2.9	3.5p	3.5	3.7	3.9	3.9	3.9	3.8	3.6	3.4	3.0	a				
10						q		b	[3.6]	3.5	3.7	3.8	4.0	3.9	4.0	3.9	4.2	b	3.7	a	a			
11					a	a	b	b	3.5	b	b	4.0	3.9	4.0	3.9	3.7	3.6	a	2.6	q				
12					a	a	b	b	3.5	3.5	3.5	3.5	3.8	3.9	3.9	3.8	3.8	3.5	3.5	3.0	q			
13					a	b	b	b	a	b	3.5	3.8	3.9	3.9	4.0	b	3.5	a	a	a				
14					b	b	b	b	b	b	3.7	3.7	b	b	3.7	3.6	b	3.3	a	q				
15					b	b	b	b	3.5	b	3.8	a	a	a	a	a	a	a	a	a				
16					a	b	b	b	b	b	3.9	b	4.0	3.9	3.8	3.6	3.5	(3.0)	q					
17					a	a	b	b	3.7	3.6	3.8	3.8	b	3.9	3.8	3.9	3.5	3.0	[2.5]	q				
18						a	b	b	3.7	3.7	3.8	3.8	3.9	4.0	3.8	3.8	3.5p	3.0	[3.0]	q				
19					a	b	a	3.7	3.4	3.7	3.7	3.9	4.0	3.9	3.9	3.8	3.7	3.5	3.0	a				
20					a	b	b	3.2	3.5	3.6	3.7	b	b	b	3.8	3.7	3.5	3.0	3.0	q				
21					b	b	2.5	b	3.5p	3.8	3.8	3.9	4.0	b	4.0	3.7	a	a	a	a				
22					a	a	2.9	b	b	b	3.6	a	[4.0]	b	b	4.0	3.5	3.5	a	a				
23					a	a	a	a	a	3.6	b	b	b	4.0	4.0	4.0	3.7	[2.7]	q	a				
24					a	b	b	3.4	3.7	b	3.8	3.8	3.8	b	b	[4.0]	3.7	b	b	[2.8]				
25						a	b	b	3.4	3.5	3.7	3.8	3.7	3.7	3.6	3.5	3.0	b	2.3	a				
26					b	a	b	b	b	b	3.7	3.7	3.8	3.8	b	3.5	b	3.0p	2.1p	q				
27					b	b	b	3.4	3.5	3.6	3.7	3.8	3.8	3.8	3.8	3.5	3.3	2.8	[2.2]	q				
28						q	3.8	3.5	3.5	3.8	3.7	3.9	4.0	3.7	3.9	3.2	2.5	b	(2.1)					
29						b	b	[2.5]	3.3	3.5	3.6	3.7	3.7	3.8	3.7	3.2	3.2	b	q					
30								[2.5]	a	3.7	3.7	3.7	3.7	3.6	3.5	3.5	3.5	q	q	a				
Median						*	3.0	3.5	3.5	3.7	3.8	3.8	3.9	3.9	3.8	3.8	3.5	3.3	3.0	*				
No.							7	15	22	21	26	23	25	25	27	29	23	20	12					

HOURLY VALUES OF  $h^oF_1$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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						q	230	200	200	230	210	220	210	190	180	200	200	200	q					
2								q	210	180	200	200	170	180	180	280	200	f	f					
3					a	a	a	a	a	a	a	a	a	100	170	200	200	220	q					
4								q	a	a	a	a	a	190	190	200	200	220	240	q				
5							240	210	200	200	200	240	230	200	250	230	a	a	a	a				
6					q	220	210	180	200	210	200	200	200	200	200	220	220							
7						q	230	200	200	220	200	200	220	200	230	200	170	a	250					
8						q	240	230	230	230	b	b	220	210	230	220	b	220	b	q				
9							q	200	200	240	200	140	210	200	220	230	a	a	a	a				
10					b	b	b	b	240	200	210	220	200	180	200	220	180	170	240	a				
11						q	b	250	1	220	220	220	230	200	200	220	b	250	a	a				
12					a	a	b	b	240	b	b	230	200	230	220	230	230	a	250	q				
13					a	a	b	b	250	250	230	230	250	180	220	220	220	230	250	q				
14					a	b	b	b	a	b	220	200	210	200	240	b	230	a	a	a				
15					b	b	b	b	b	b	230	200	b	b	230	b	b	250p	a	q				
16					b	b	b	b	(250)	b	200	a	a	a	a	a	a	a	a	a				
17					a	b	b	b	b	b	210	b	b	200	200	200	200	270	q					
18					a	a	b	b	b	b	200	200	b	200p	210	250p	220	250	290	q				
19								b	230	220	190	200	200	210	200	220	210	230	250	q				
20					a	b	b	250	250	230	210	190	180	220	220	220	200	230	240	a				
21					a	b	b	260p	220	210	200	b	b	b	210p	230	240	200p	240	q				
22						b	b	b	(250)	200	170	190	195	b	[220]	230	a	a	a	a				
23					a	a	a	250	b	b	230	a	[210]	b	b	[220]	b	220	a	a				
24					a	a	a	a	a	a	220	b	b	b	220p	200	230	250	a	q	a			
25					a	b	b	270	250	b	240	230	210	b	b	[250]	230	b	b	250				
26						a	b	b	200	200	180	190	180	220	210	220	240	b	260	a				
27					b	a	b	b	b	b	220	230	200	230	b	b	b	250	260	q				
28					b	b	b	220	220	200	180	220	190	200	210	210	220	230	q					
29						q	230	210	190	200	200	200	240	210	200	200	240	240	b	210				
30						b	b	240	230	190	1	220	220	220	220	(220)	(230)	b	q					
31								240	a	220	230	230	230	230	220	220	260	q	q	a				
Median						*		235	230	225	220	200	200	210	200	220	220	230	250	*				
No.							6	15	20	20	25	23	24	25	27	27	22	17	12					

HOURLY VALUES OF  $f^oE$  OBSERVED DURING MARCH 1954 AT MACQUARTE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					a	a	1.9	2.1	2.5	2.6	2.6h	2.6	b	3.0	2.8	2.8	2.6	2.3	1.8	b				
2					s	a	1.8f	2.2	2.6f	2.8	b	3.2	3.1	3.2	2.8	b	2.6f	2.1f	2.0	b				
3					o	o	o	o	o	o	o	o	o	2.9	2.9	3.0	2.7	2.5	o	o				
4					a	a	[2.0]	o	o	o	o	e	3.3	2.9	3.0	2.9	3.0	2.1	2.0f	a				
5					b	b	2.0	2.2f	2.5	2.8	2.9	2.9	2.2	2.8f	2.5f	2.3f	2.0f	a	a	a				
6				a	a	a	2.0	2.4	2.5	2.5	2.7	2.8	3.0	2.8	2.8	2.6f	2.5f	a	a	a				
7					a	a	1.6	2.0	2.8	2.6	3.0	2.9	3.0	2.9	3.0	2.9	2.8f	2.7f	b	2.2	b			
8							b	2.4	2.5	2.4	b	b	2.8p	3.1	2.9f	2.8	b	b	b	b				
9					a	a	b	2.4	2.5	2.4	2.8	3.1	3.1	3.1	2.8	2.5	a	a	a	o				
10					b	b	b	b	2.4	2.9	2.8	2.9	3.1	2.8	3.1	2.8	2.6	2.3	2.0	a				
11					a	a	b	b	b	2.6	2.7	2.8	2.9	3.0	2.7	3.0	b	2.5	a	a				
12					b	a	b	b	2.6	b	b	3.2	3.0	3.2	2.9	2.8	2.4	a	2.0	a				
13					i		b	b	b	b	b	2.9	2.9	2.9	2.8	2.7	2.5	2.2	(1.5)	b				
14					a	b	b	b	o	b	2.9	3.0	3.0	2.8	2.8	b	2.7f	b	3.9	a				
15					b	b	b	b	b	b	b	2.8	b	b	3.0	3.0f	b	b	2.5pf	2.1f				
16					b	b	b	b	b	b	3.0p	o	o	o	o	o	o	o	o	o				
17					a	b	b	b	b	b	(2.8)	b	b	b	2.8f	2.5	2.5	(2.5)	(1.6)	a				
18					a	a	b	b	b	b	3.0	3.0	b	b	3.0	b	2.5	2.3f	2.0f					
19					a	a	b	b	[2.5]	2.5	2.7	2.8	2.8	2.9	2.7	2.6	2.5	2.0	b	a				
20					a	b	a	b	b	2.8p	2.8	2.8	2.8	3.0	2.8	2.8f	2.4f	2.0p	a	a				
21					a	b	b	b	2.4	2.6	2.8	b	b	b	b	2.8	2.5	b	b	a				
22					b	b	b	b	b	2.6	2.8	2.9	3.0f	b	3.0	2.7	o	o	o	o				
23					a	a	[1.7]	b	b	b	3.0	e	b	b	b	b	a	[1.5]	[1.5]	b				
24					a	a	s	s	s	2.6	b	b	b	b	2.8f	3.0	2.8	2.1f	2.1	a				
25					a	b	b	b	2.4	b	2.8	2.8	2.8	b	b	b	2.3	2.0	1.6f	[1.7]				
26					a	a	b	b	2.5	2.5	3.0p	2.8f	3.0	2.8	2.5f	2.4f	2.1f	b	[1.6]	a				
27					b	a	a	b	b	b	[2.8]	3.0	2.8	2.8	b	b	b	b	b	b				
28					b	b	(1.4)	1.8	2.4	2.5	2.7	2.8	3.0	2.8	2.7f	2.5	2.1	1.8f	b	b				
29					s	s	b	2.2	2.5	2.5	2.5	2.8	3.0	2.9	2.7	2.6	2.4	b	b	a				
30					a	b	b	1.7	2.0	2.5	2.5	3.0	2.9	2.9	b	(2.5)	b	b	b	b				
31					a	a	b	1.6	o	3.0	3.0	3.0	2.8	2.7	2.5f	2.0f	a	a	a	a				
Median					*		1.8	2.2	2.5	2.6	2.8	2.9	3.0	2.9	2.8	2.8	2.5	2.1	2.0	*				
No.							8	11	16	19	23	23	22	22	25	24	21	15	15					

HOURLY VALUES OF  $h^*E$  OBSERVED DURING MARCH 1954 AT MACQUARTE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					a	a	100	100	100	100	100	100	100	100	100	100	100	100	100	b				
2					s	a	100	100	100	b	b	100	100	100	100	b	100	100	100	b				
3					o	o	o	o	o	o	o	o	o	o	100	100	100	100	100	o	o			
4					a	a	100	o	o	o	o	o	o	100	100	100	100	100	100	a				
5					b	b	100	100	100	100	100	100	100	100	100	100	120	100	a	a	a			
6				a	a	a	100	100	100	100	100	100	100	100	100	100	100	100	a	a	a			
7					a	a	o	100	100	100	100	100	100	100	o	100	100	100	b	100	b			
8							b	90	100	b	b	b	b	100	100	b	b	b	b	b				
9					a	a	b	100	100	100	100	100	o	100	100	100	a	a	a	o				
10					b	b	b	b	100p	100	100	100	100	100	100	100	100	100	(14.0)	a				
11					a	a	b	b	b	110	100	100	100	100	100	o	b	100l	a	a				
12					b	a	b	b	100	b	b	100	100	100	100	100	100	100	s	o	a			
13							b	100	b	b	b	100	100	120	120	100	100	100	o	b				
14					a	b	b	b	o	b	o	o	o	100	100p	b	100	b	o	a				
15					b	b	b	b	b	b	b	100	b	b	100p	100	b	b	100	100				
16					b	b	b	b	b	b	o	o	o	o	o	o	o	o	o	o				
17					a	b	b	b	b	b	b	b	b	b	100	100	100	100	b	b	a			
18					a	a	b	b	b	b	100	100	b	b	100	b	110	100	120	a				
19					a	a	b	b	b	100	100	100	100	100	100	100	100	100	b	a				
20					a	b	a	b	b	100p	110	100	100	b	b	100	100	100	a	a				
21					a	b	b	b	b	100	100	100	b	b	b	b	b	o	b	a				
22					b	b	b	b	b	100	100	100	100	b	b	b	o	o	o	o				
23					a	a	[100]	b	b	b	100	o	b	b	b	b	a	[100]	100	a				
24					a	a	s	s	s	b	b	b	b	b	100	100	b	110p	120	a				
25					a	b	b	b	100	b	b	b	b	b	b	b	100	b	[120]	[120]				
26					a	a	b	b	100	100	100	100	100	100	100	100	100	b	b	a				
27					b	a	a	b	b	b	100	100	100	100	b	b	b	b	b	b				
28					b	b	b	120	s	100	100	100	100	100	100	100	100	100	b	b				
29					s	s	b	b	100	100	100	100	100	100	100	100	110	b	b	a				
30					a	b	b	100	100	100	100	b	100	100	b	b	b	b	b	b				
31					a	a	b	100	o	b	110	100	100	100	100	100	a	a	a	a				
Median					*		100	100	100	100	100	100	100	100	100	100	100	100	100	*				
No.							6	11	13	15	19	21	19	21	22	19	19	13	10					

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 = 13.0$  Mo/s in 1m 55s.

$-157.5^{\circ}E$  Mean Time

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	4.5	(4.5)	3.2	2.3	2.4	2.3	(2.5)	g	2.6	2.9	2.9	2.8	2.9	g	g	g	g	g	e	e	e	e	e	e
2	4.8	e	3.0f	e	e	3.1f	4.3	3.0f	g	g	g	g	g	g	g	g	3.0f	4.3	4.3	4.5	4.5f	6.0p	4.8	
3	3.3p	4.5	4.0	o	o	o	o	o	o	o	o	o	o	g	g	g	g	g	2.7	2.5f	2.5	3.1	7.0p	4.5p
4	e	4.5	4.1	5.0	3.0	3.0f	2.2f	o	o	o	o	o	3.5	3.5	3.7	g	4.1	2.3	2.2f	4.0	5.5	4.5f	6.0	5.0
5	3.0	4.5	3.2f	e	g	g	2.3	g	2.7	3.0	g	3.2	3.0	g	4.2	2.5f	3.5	5.0	4.6	5.5	5.0	e	5.5	5.5
6	4.5	4.2f	2.0p	2.7	2.3	2.3	2.9	3.4	3.2	3.0	3.0	3.4	3.0	g	g	3.5	4.3f	6.5	2.4	2.3f	3.3f	5.0	4.3	4.4
7	3.5	2.1	e	2.5	2.3	2.3	1.8	2.1	3.3	2.8	g	g	3.5	g	g	g	g	3.1	2.7f	2.6f	4.7	4.5	5.3	5.8
8	5.5	5.0	2.8	3.2	2.7	2.5	g	g	g	g	g	g	3.1	g	g	g	g	g	5.2	3.4	3.0	5.7	6.0	6.0
9	5.5	5.0	3.1	3.2	2.5	4.3	2.2	2.6	g	g	2.8	g	g	g	g	g	5.7	4.0	2.5	o	o	o	o	o
10	3.3	5.0	2.3	2.3	g	g	g	g	g	g	g	2.9	3.3	g	3.0	2.8	2.8	2.4	g	4.0	5.0	4.5	3.2	5.0
11	4.2	4.7	4.0	2.3	2.4	2.0	2.5	g	g	g	g	g	g	g	2.9	g	g	g	6.5	5.4	6.5	e	4.6	4.9
12	3.5	4.8	2.6	3.1	g	2.4	g	g	g	g	g	g	g	g	g	g	g	g	2.4	e	2.3	2.8	5.0	
13	4.7	4.3	4.2	4.1	3.3f	2.4	2.2	g	g	g	g	g	g	3.0	g	g	g	3.0	3.4	2.0	2.4	e	e	3.9
14	5.0	4.5	5.3	3.0	3.2	g	g	g	o	g	g	g	g	g	3.5	b	3.0f	6.5f	3.8	6.0	D5.0	D5.0	D5.0	D5.0
15	5.0	g	g	g	b	b	b	b	b	b	b	3.4f	g	g	g	3.2f	b	b	5.7f	3.0f	5.7	5.0	5.5	4.5
16	4.1	b	4.1	2.4	b	b	b	b	b	b	o	o	o	o	o	o	o	o	o	o	o	o	o	5.0
17	e	e	4.2	2.6f	2.5	g	g	g	g	g	g	g	g	g	3.0	g	g	2.5	g	4.6f	e	3.7f	5.5f	3.5f
18	4.5y	3.0f	e	4.0	4.0	3.5	b	b	b	b	g	b	b	g	b	g	3.0	4.3	4.1	4.0	3.4	5.0		
19	4.6	4.2	4.6f	4.6f	2.5	2.8	b.1	b	g	g	g	g	g	g	g	g	g	2.1	2.0	b	b	e	2.4f	
20	5.0	e	e	3.3	2.6	g	3.2	g	g	g	g	g	g	g	g	6.0	5.3f	5.2f	3.0	5.0	4.3	5.5	5.0	3.1
21	4.2	2.7f	2.5	3.6	3.0p	b	b	b	g	g	g	b	b	b	b	b	3.6	b	b	3.4	3.2	6.0	6.0	5.6
22	4.7	3.1	2.8	3.1	b	b	2.6	b	b	g	g	g	g	b	g	g	o	o	o	o	6.0	7.0	5.3	2.7
23	4.1	4.1	3.0	2.3	3.3f	2.5f	2.0	b	b	b	3.1f	o	b	b	b	b	3.4f	5.2	5.2f	5.9	5.0	5.2	4.2	e
24	e	e	e	4.3	3.2	4.4	e	e	e	g	g	g	g	g	g	g	g	3.5	7.0	5.8	5.7	4.3	5.0	
25	e	3.7	4.8	4.0f	4.2	b	b	b	g	b	g	g	g	b	b	b	2.5	g	2.6	5.8	4.5h	5.2	e	3.2
26	3.6	3.6f	3.5f	3.8	2.4	2.7	b	b	g	g	2.7	g	g	2.5	g	2.9	2.4	g	g	5.0	6.0	4.6	4.8	e
27	e	3.1	3.1	e	g	2.8	2.8	b	b	b	g	g	g	g	b	b	b	b	4.0	6.2	5.3f	4.6	3.2	
28	1.9	2.1	g	g	b	g	g	3.1	2.4	2.8	g	g	g	g	g	g	2.1	g	g	g	e	2.1	4.7	2.0
29	2.2	2.2f	1.6	e	e	e	b	g	g	g	g	g	g	g	g	g	g	b	b	2.1	2.1	b	b	4.5
30	4.5	3.5	3.7	2.9	1.9	b	b	1.9	g	g	g	g	g	g	b	b	b	b	b	b	3.0	2.1f	2.8	4.8
31	6.0	5.7	5.2	3.8f	2.0f	2.1	g	g	o	g	3.0	g	g	g	g	g	3.0	2.5	3.7	5.8	4.3	4.1	4.1	4.2
Median	4.2	4.2	3.1	3.0	2.4	2.4	2.2	**	**	**	**	**	**	**	**	**	2.1	2.4	2.7	4.0	4.4	4.5	4.7	4.5
No.	29	28	30	28	24	22	20	18	20	23	27	26	26	25	25	23	26	24	25	27	28	27	27	30

HOURLY VALUES OF  $h^*E$  OBSERVED DURING MARCH 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 = 13.0$  Mo/s in 1m 55s.

$-157.5^{\circ}E$  Mean Time

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	100	100	100	100	120	g	130	120	130	120	120	g	g	g	g	g	e	e	e	e	e	e	
2	150	e	100	e	e	100	100	100	g	g	g	g	g	g	g	g	g	120	140	100	100	100	100	100	
3	100	100	100	o	o	o	o	o	o	o	o	o	o	g	g	g	g	g	120	130	120	120	100	100	
4	e	100	100	100	100	100	100	o	o	o	o	o	120	110	100	g	110	110	110	120	100	100	100	120	
5	100	100	100	e	g	g	110	g	130	130	g	130	130	g	150	150	140	100	100	100	100	e	100	100	
6	100	100	100p	100	100	100	130	120	120	110	120	120	120	g	g	150	140	120	130	100	150	100	100	100	
7	100	100	e	100	100	100	130	130	130	130	g	g	g	g	g	g	g	g	140	130	130	100	100	100	100
8	100	100	100	100	100	100	g	g	g	g	g	g	g	100	g	g	g	g	g	120	130	150	100	100	100
9	100	100	100	100	100	100	100	150	g	g	120	g	g	g	g	g	100	100	130	o	o	o	o	o	
10	120	100	100	100	g	g	g	g	g	g	g	g	130	130	g	130	130	140	150	g	110	110	150	100	100
11	100	100	100	100	100	110	100	g	g	g	g	g	g	g	g	g	120	g	g	g	120	110	e	100	100
12	90	95	90	95	g	100	g	g	g	g	g	g	g	g	g	g	g	g	g	120	e	100	150	100	
13	100	100	100	100	100	110	120	g	g	g	g	g	g	g	140	g	g	g	130	120	130	110	e	e	100
14	100	100	100	100	100	g	g	g	o	g	g	g	g	g	150	b	130	100	100	110	100	100	100	100	
15	100	e	e	e	b	b	b	b	b	b	b	110	g	g	g	130	b	b	100	100	100	100	100	100	
16	100	b	100	100	b	b	b	b	b	b	b	o	o	o	o	o	o	o	o	o	o	o	o	100	
17	e	e	100	100	110	g	g	g	g	g	g	g	g	g	g	100	g	g	130	g	130	e	130	100	100
18	100	100	e(s)	100	100	100	b	b	b	b	g	g	g	b	b	g	b	g	150	140	120	100	100	100	100
19	100	100	100	100	100	90	100	b	b	g	g	g	g	g	g	g	g	g	g	120	120	e	e	e	100
20	100	e	e	100	120	g	100	g	g	g	g	g	g	g	g	130	130	100	110	100	100	100	100	90	
21	100	100	100	100	100	b	b	b	g	g	g	b	b	b	b	b	150	b	b	170	150	100	100	100	100
22	100	100	100	100	b	b	100	b	b	g	g	g	g	g	g	g	o	o	o	o	100	100	100	100	e
23	100	100	100	100	100	100	120	b	b	120	o	b	b	b	b	b	130	120	110	130	100	100	100	100	e
24	e	e	e	100	100	100	e	e	e	g	g	g	g	g	g	g	g	g	g	140	100	100	100	100	100
25	e	100	100	100	100	b	b	b	g	b	g	g	g	b	b	b	160	g	160	130	100	110	e	100	
26	100	100	100	100	100	100	b	b	g	g	110	g	g	130	g	130	140	g	g	100	100	100	100	100	e
27	e	100	110	e	g	100	100	b	b	b	g	g	g	g	b	b	b	b	b	130	100	100	100	100	100
28	100	100	e	e	b	b	g	120	130	120	g	g	g	g	g	g	g	g	b	b	100	90p	b	b	100
29	100	100	110	e	e	b	b	g	g	g	g	g	g	g	g	g	g	g	b	b	100	150	130	130	130
30	100	100	100	100	140	b	b	110	g	g	g	g	g	g	b	b	b	b	b	b	b	150	130	130	130
31	100	100	100	100	150	100	g	g	o	g	130	g	g	g	g	g	110	150	180	110	110	120	100		

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	g	g	3.9	4.0f	4.0f	4.0	4.1	4.2	4.1	4.2	4.1	4.3	4.0	3.0f	2.0f	e	a
2	a	a	a	a	a	a	a	g	e	e	e	e	4.5	4.5	4.4	4.3	4.4	4.3	4.1	3.3f	2.9f	a	a	a
3	a	a	a	(4.0)	2.9f	3.0	g	g	b	b	b	b	b	4.0	4.1	4.4	4.2f	2.6f	a	a	b	a	a	a
4	b	a	a	1.6f	1.5	1.5	a	3.5	3.8	b	b	b	4.1	4.5	4.8	a	e	3.2f	2.8f	a	a	a	a	a
5	a	a	b	1.5	b	a	2.7	3.4f	b	4.5	a	b	4.7	5.0	5.0	5.0	5.0	b	4.0	a	a	a	a	a
6	a	a	b	b	b	b	2.1	3.2	3.8	4.0	4.3	4.5	5.0	5.0	5.2	4.7	5.0f	5.0	4.1f	3.0f	3.0	[2.5]	a	a
7	a	a	a	a	b	a	2.3	3.5	3.8f	4.1f	4.7	5.0	(5.9)	5.5	5.7	5.2	5.2	5.2	e	e	e	e	e	e
8	2.1f	a	2.0	1.9	1.7	1.7	b	3.2f	3.7	4.1	4.1	4.4	e	e	e	e	e	e	e	e	e	e	e	e
9	e	1.9	2.1f	2.0f	a	a	(1.4)	3.0	3.8	4.2	4.6f	a	a	e	e	e	e	e	e	e	e	e	e	e
10	a	a	a	a	a	a	a	a	a	a	a	e	e	e	e	e	e	e	4.3f	4.0f	3.1f	2.0	a	a
11	a	2.2	1.6	a	a	b	[2.1]	2.9	3.5	4.0	4.0	5.2	4.7	4.5	4.5	4.5	4.5	4.0	3.8f	3.3	2.5	b	a	a
12	a	[2.1f	a	a	a	b	b	b	b	b	b	b	a	a	a	b	a	a	a	a	a	a	a	a
13	a	a	a	a	a	a	2.7	4.0	a	b	5.7	6.4f	b	6.4	(6.3)	6.5	6.5	6.5	5.7	3.8f	3.1f	(2.0)	a	a
14	b	b	a	a	b	a	2.2	3.2	3.9	b	4.5	4.5	5.0	5.8	6.0	4.5	a	3.5f	2.3f	a	a	a	a	a
15	a	b	a	1.9f	1.5	1.4	2.0	g	g	4.1	4.4	4.5	4.9	5.0	b	4.5	3.6f	3.5	a	a	e	e	e	e
16	e	e	e	e	e	a	a	b	b	b	4.0	4.2	4.3	4.5	4.3	4.2	4.3	4.3	a	2.9f	2.4f	2.1	3.5	2.4f
17	2.1f	2.0f	1.8f	1.5f	1.8f	g	1.7f	b	b	b	4.3	4.7	4.7	4.6	4.7	4.6	4.5	5.0	4.7f	3.5f	2.1f	2.8f	2.4f	1.7f
18	2.0f	1.6f	2.2	1.8	1.6	a	a	2.9f	3.8	4.1	4.3	4.9	5.1	5.2	5.0	5.0f	4.9f	3.0f	b	b	b	a	a	a
19	a	a	a	1.9f	a	a	a	b	g	4.0	4.3	4.3	4.5	4.5	4.4	4.4	e	e	e	e	e	e	e	e
20	a	a	a	a	a	b	2.8	3.6	3.7	4.3	4.5	4.3	4.3	e	4.4	4.4	4.2f	e	(3.8)	(2.8)	2.5	a	a	a
21	a	a	2.0	a	a	a	a	b	3.4	3.7	4.0	4.2	4.0	4.2	4.0	3.9	3.8f	3.1f	a	2.9	2.9f	2.3	a	a
22	a	a	a	a	a	a	a	2.7	3.5	3.8	4.0	4.3	4.3	4.3	4.4	4.6	4.3	3.0	2.4f	2.0f	[3.6]	2.4	a	a
23	a	a	(1.4)	b	b	a	a	2.9	3.5	4.0	4.3	4.7	5.1	5.0	5.0	4.7	4.5	5.0	2.9f	3.5	a	b	a	a
24	a	e	a	a	a	a	a	b	b	b	3.9	4.1	4.3	4.3	4.3	5.0	4.2	4.2f	3.9	3.0	a	a	a	a
25	1.9	a	a	1.9	a	a	a	b	3.6	3.9	4.3	5.1	4.7f	5.0	b	5.0	4.9	3.0f	2.2f	1.8f	1.7f	1.9	a	a
26	2.0f	a	a	b	b	b	b	2.7	3.5	b	4.3	4.7	5.3	5.0	5.1	5.2	3.4	e	3.5f	2.0f	2.0	2.1	a	a
27	a	b	a	a	1.6f	1.4	a	2.1f	e	e	4.5	b	b	5.5	5.0f	5.2f	e	3.0f	a	a	a	a	a	a
28	a	a	a	a	a	a	a	b	3.5	3.9	4.3	4.7	5.1	5.0	4.9	4.9	5.1	4.1	4.0	3.0f	2.1	e	2.4	1.9
29	a	a	a	a	e	e	e	e	e	e	e	4.2	4.6f	4.5f	4.8f	4.5	4.3	4.2	3.2	2.7f	1.9	1.7	a	a
30	a	a	a	a	a	a	a	2.8	3.8	4.0f	4.2	5.0	5.0	5.4	5.0	4.9	5.0	e	e	e	e	e	e	e
31																								
Median	(2.0)	(2.0)	(2.0)	1.9	(1.6)	(1.4)	2.1	2.9	3.6	4.0	4.3	4.5	4.7	5.0	4.8	4.7	4.5	4.2	3.8	3.0	2.5	2.0	(2.4)	*
No.	5	5	7	10	7	6	11	20	19	17	23	22	23	25	24	25	23	20	18	18	15	12	5	

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	g	g	350	350	370	400	370	340	340	300	250	250	220	220	230	e	a
2	a	a	a	a	a	a	a	g	e	e	e	e	330	330	330	300	250	230	230	220	230	a	a	a
3	a	a	a	(400)	280	550	g	g	b	b	b	b	b	400	350	300	300	300	a	a	b	a	a	a
4	b	a	a	230	330	330	a	290	350	b	b	b	350	330	270	a	e	280	240	a	a	a	a	a
5	a	a	b	e	b	a	260	230	b	300	a	b	280	280	270	260	250	b	260	a	a	a	a	a
6	a	a	b	b	b	b	250	250	300	300	320	330	300	260	250	250	230	200	220	250	300	300	a	a
7	a	a	a	a	b	a	260	240	240	[250]	280	270	a	270	250	210	250	240	e	e	e	e	e	e
8	f	a	330	340	350	300	b	250	250	320	300	e	e	e	e	e	e	e	e	e	e	e	e	e
9	e	300	270	300	a	a	e	230	220	320	280	a	a	e	e	e	e	e	e	e	e	e	e	e
10	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	250	250	250	e	a
11	a	a	a	a	a	b	e	250	230	330	370	330	310	330	300	250	250	240	230	230	230	230	b	a
12	a	300	a	a	a	b	b	b	b	b	b	a	a	a	b	a	a	a	a	a	a	a	a	a
13	a	a	a	a	a	a	290	250	a	b	280	250	b	270	(250)	240	250	230	240	240	300	250	a	a
14	b	b	a	a	b	a	270	250	290	b	300	290	250	280	250	300	220	a	210	250	220	a	a	a
15	a	b	a	250	250	250	470	g	g	250	280	320	280	270	b	250	220	250	a	a	e	e	e	e
16	e	e	e	e	e	a	a	b	b	b	250	350	350	280	300	260	240	230	a	250	250	250	280	280
17	300	[300]	280	300	300	g	250	b	b	b	330	290	260	270	250	260	230	220	230	200	240	220	250	240
18	250	e	320	300	250	a	a	250	230	250	280	260	240	240	230	230	240	b	b	b	a	a	a	
19	a	a	a	340	a	a	a	b	g	270	310	320	280	280	250	240	e	e	e	e	e	e	e	e
20	a	a	a	a	a	b	240	240	220	240	280	270	320	e	300	250	260	e	260	b	[230]	a	a	a
21	a	a	290	a	a	a	a	b	230	360	330	280	1	330	1	350	270	340	a	260	210	280	a	a
22	a	a	a	a	a	a	a	250	270	250	320	290	300	300	270	240	240	240	240	250	240	360	a	a
23	a	a	a	b	b	a	a	220	220	240	240	270	250	260	250	220	210	210	260	340	a	b	a	a
24	a	e	a	a	a	a	a	b	b	b	400	280	310	340	310	300	250	220	250	300	a	a	a	a
25	250	a	a	a	a	a	a	b	240	240	250	260	240	250	b	250	230	230	300	300	280	260	270	a
26	300	a	a	b	b	b	b	200	210	b	260	260	250	270	270	250	e	320	a	a	a	a	a	a
27	a	b	a	a	e	e	a	240	e	e	300	b	b	330	250	250	e	320	a	a	a	a	a	a
28	a	a	a	a	a	a	a	b	[230]	240	270	290	270	270	230	250	230	270	260	230	300	e	e	h
29	a	a	a	a	e	e	e	e	e	e	e	280	260	290	260	250	240	250	240	240	280	280	a	a
30	a	a	a	a	a	a	a	250	220	230	250	250	250	240	240	240	240	e	e	e	e	e	e	e
31																								
Median	*	*	(290)	(300)	(290)	*	265	250	240	250	280	285	280	280	260	250	240	240	245	250	245	280	*	*
No.			5	9	6		10	20	19	16	23	22	21	25	23	25	23	20	18	17	16	11		

HOURLY VALUES OF  $f_{min}F_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1m55s$

$157.5^\circ E$  Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	a	a	g	g	u	u	u	u	u	u	u	u	280	280	250	270	270	e	a	
2	a	a	a	a	a	a	a	g	o	e	e	e	u	u	u	300	250	240	250	250	350	a	a	a	
3	a	a	a	a	300	u	g	g	b	b	b	b	b	u	u	300	300	300	a	a	b	a	a	a	
4	b	a	a	a	a	a	a	u	u	b	b	b	u	u	270	a	o	290	250	a	a	a	a	a	
5	a	a	b	e	b	a	270	240	b	u	a	b	u	u	270	270	270	b	320	a	a	a	a	a	
6	a	a	b	b	b	b	270	270	u	u	u	u	u	u	250	250	250	250	250	280	340	300	a	a	
7	a	a	a	a	b	a	300	250	250	u	u	u	u	u	250	220	260	250	e	e	e	e	e	e	
8	f	e	340	u	u	u	b	250	u	u	u	u	o	o	o	o	o	o	o	o	o	o	o	o	
9	e	300	280	300	a	a	e	230	u	u	u	a	a	o	o	o	o	o	o	o	o	o	o	o	
10	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	270	300	300	e	a
11	a	a	a	a	a	b	e	270	250	u	u	350	u	u	u	270	260	260	260	260	260	b	a	a	
12	a	300	a	a	a	b	b	b	b	b	b	a	a	a	b	a	a	a	a	a	a	a	a	a	a
13	a	a	a	a	a	a	300	280	a	b	290	250	b	270	(250)	250	260	250	250	270	300	e	a	a	
14	b	b	a	a	b	a	u	270	300	b	u	u	u	280	270	320	220	a	220	250	a	a	a	a	
15	a	b	a	260	e	e	u	g	g	u	u	u	u	u	b	250	220	250	a	a	e	a	e	e	
16	e	e	e	e	e	a	a	b	b	b	u	u	u	u	u	280	250	250	a	250	270	u	280	280	
17	300	e	290	e	300	g	250	b	b	b	u	u	u	u	250	260	260	250	240	250	240	240	250	240	
18	300	e	320	300	290	a	a	250	230	u	u	u	u	260	240	230	240	250	b	b	b	a	a	a	
19	a	a	a	a	a	a	a	b	g	u	u	u	u	u	u	250	240	e	e	e	e	e	e	e	
20	a	a	a	a	a	b	u	u	u	u	u	u	u	u	u	250	260	e	a	b	a	a	a	a	
21	a	a	300	a	a	a	a	b	250	u	u	u	u	u	u	u	270	340	a	e	250	280	a	a	
22	a	a	a	a	a	a	a	260	u	u	u	u	u	u	u	240	250	260	250	250	240	e	a	a	
23	a	a	a	b	b	a	a	240	220	u	u	u	u	u	u	220	230	270	280	390	a	b	a	a	
24	a	e	a	a	a	a	a	b	b	b	u	u	u	u	u	250	240	250	340	a	a	a	a	a	
25	e	a	a	a	a	a	a	b	u	u	u	260	u	250	b	250	250	260	310	310	280	270	290	a	
26	e	a	a	b	b	b	b	220	210	b	270	u	u	u	280	260	260	e	260	270	u	u	a	a	
27	a	b	a	a	e	e	a	250	e	e	u	b	b	a	250	270	e	320	a	a	a	a	a	a	
28	a	a	a	a	a	a	a	b	240	240	u	u	270	270	240	270	250	270	b	250	e	e	e	h	
29	a	a	a	a	e	e	e	e	e	e	u	u	u	u	260	270	240	260	260	260	300	u	a	a	
30	a	a	a	a	a	a	a	260	240	240	u	250	250	240	250	260	270	e	e	e	e	e	e	e	
31																									
Median	*	*	(300)	(300)	*	*	(300)	260	250	*	*	*	*	(260)	250	260	250	260	255	260	275	(275)	*	*	
No.			5	5			7	18	12					6	15	22	22	20	16	16	12	6			

HOURLY VALUES OF  $(M3000)F_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1m55s$

$157.5^\circ E$  Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	g	g	3.1	3.2	3.1	2.8	3.1	3.1	3.1	3.2	3.2	3.1	3.2	3.2	3.1	e	a
2	a	a	a	a	a	a	a	g	o	e	e	e	3.1	3.1	3.1	3.1	3.3	3.4	3.2	3.1	2.8	a	a	a
3	a	a	a	2.7	3.1	g	g	g	b	b	b	b	b	2.7	3.1	3.1	3.0	3.2	a	a	b	a	a	a
4	b	a	a	3.1	3.1	3.0	a	3.2	3.1	b	b	b	3.1	3.1	3.2	a	e	[3.3]	3.4	a	a	a	a	a
5	a	a	b	3.1	b	a	3.1	3.5	b	3.2	a	b	3.5	3.5	3.3	3.3	3.2	b	3.1	a	a	a	a	a
6	a	a	b	b	b	b	3.4	3.2	3.3	3.3	3.2	3.1	3.2	3.5	3.6	3.7	3.3	3.4	3.4	3.3	3.2	3.2	a	a
7	a	a	a	a	b	a	3.0	3.5	3.3	3.3	3.2	3.3	3.2	3.3	3.6	3.7	3.5	3.6	e	e	e	e	e	e
8	3.1	a	3.1	3.1	3.1	3.0	b	3.4	3.4	3.4	3.2	3.2	e	e	e	e	e	e	e	e	e	e	e	e
9	e	3.2	3.2	3.0	a	a	3.1	3.7	3.6	3.1	3.6	a	a	e	e	e	e	e	e	e	e	e	e	e
10	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	3.1	3.1	3.1	3.1
11	a	a	a	a	a	b	[3.1]	3.3	3.3	3.2	3.0	3.1	3.1	3.1	3.4	3.4	3.4	3.3	3.3	3.3	3.3	b	a	a
12	a	3.2	a	a	a	b	b	b	b	b	a	a	a	a	b	a	a	a	a	a	a	a	a	a
13	a	a	a	a	a	a	3.0	3.2	a	b	3.1	3.4	b	3.3	(3.2)	3.4	3.5	3.2	3.2	3.2	3.1	3.6	a	a
14	b	b	a	a	b	a	3.1	3.3	3.2	b	3.2	3.5	3.9	3.3	3.5	2.8	3.7	a	3.6	3.3	a	a	a	a
15	a	b	a	3.2	3.6	3.3	2.7	g	g	3.6	3.4	3.2	3.3	3.5	b	3.5	3.6	3.5	a	a	e	e	e	e
16	e	e	e	e	e	a	a	b	b	b	3.3	3.2	3.0	3.4	3.2	3.3	3.4	3.2	a	2.9	3.4	3.2	3.5	
17	3.0	3.1	3.2	3.3	3.1	g	3.4	b	b	b	3.2	3.3	3.5	3.3	3.5	3.4	3.2	3.3	3.3	3.4	3.3	3.3	3.3	
18	3.1	3.3	3.2	3.2	3.2	a	3.6	3.6	3.5	3.5	3.3	3.6	3.6	3.6	3.5	3.5	3.5	3.1	b	b	b	a	a	a
19	a	a	a	3.1	a	a	a	b	g	3.3	3.2	3.2	3.5	3.5	3.6	3.7	e	e	e	e	e	e	e	a
20	a	a	a	a	a	b	3.6	3.7	3.2	3.3	3.4	3.6	3.3	e	3.4	3.6	3.3	e	e	b	3.4	a	a	a
21	a	a	3.3	a	a	a	a	b	3.6	3.0	3.3	3.5	3.0	3.2	3.1	3.0	3.4	2.8	a	3.1	3.3	3.2	a	a
22	a	a	a	a	a	a	a	3.5	3.4	3.5	3.1	3.3	3.3	3.2	3.5	3.7	3.4	3.5	3.2	3.3	[3.5]	3.2	a	a
23	a	a	[3.4]	b	a	a	a	3.6	3.8	3.7	3.7	3.5	3.6	3.5	3.7	3.5	3.7	3.5	3.7	3.1	2.7	a	b	a
24	a	e	a	a	a	a	a	b	b	2.7	3.2	3.3	3.0	3.3	3.6	3.6	3.6	3.6	3.4	3.0	a	a	a	a
25	3.3	a	a	a	a	b	a	b	3.8	3.6	3.5	3.5	3.6	3.5	b	3.3	3.3	3.4	3.1	3.0	3.3	3.4	3.3	a
26	3.5	a	a	b	b	b	b	3.7	3.6	b	3.5	3.6	3.5	3.2	3.1	3.4	3.3	e	3.3	3.3	3.4	3.2	a	a
27	a	b	a	a	3.3	[3.4]	a	3.6	e	e	3.2	b	b	a	3.4	3.1	e	3.1	a	a	a	a	a	a
28	a	a	a	a	a	a	a	b	3.5	3.5	3.4	3.2	3.3	3.4	3.6	3.3	3.4	3.4	b	3.2	3.0	e	e	2.8
29	a	a	a	a	e	e	e	e	e	e	e	3.6	3.5	3.3	3.5	3.2	3.6	3.3	3.3	3.1	3.1	3.1	a	a
30	a	a	a	a	a	a	a	3.5	3.6	3.5	3.5	3.4	3.6	3.4	3.5	3.3	3.3	e	e	e	e	e	e	e
31																								
Median	(3.1)	*	(3.2)	(3.1)	(3.1)	(3.0)	3.1	3.4	3.4	3.3	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.2	3.2	3.3	3.2	*	*
No.	5		6	9	7	6	11	20	19	17	23	22	22	24	24	25	23	20	16	17	15	11		

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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								3.1	3.5	3.4	3.5f	3.8	3.7	3.8	3.6	3.5	3.3	2.5						
2								3.0	e	e	e	e	3.7	3.7	3.7	3.5	3.2	2.3						
3						2.3f	2.3f	3.2	b	b	b	b	3.7	3.7	3.5	3.5	3.1f	q						
4								3.0	[3.5]	b	b	b	3.7	3.7	3.5f	a	2.7f	q						
5								[2.7]	b	3.7	#	b	3.8	3.8	3.6	3.5	b	b	q					
6								3.2	3.5	3.7	3.8	3.8f	3.8f	3.6	3.5f	q								
7							[1.9]	2.3	3.1f	3.3f	3.8f	3.8f	4.1	3.8	3.6	3.6	[3.2]	q						
8								[2.5]	[3.0]	3.5	3.7	3.7	e	e	e	e	e	e						
9								(2.1)	q	3.5	3.8f	#	e	e	e	e	e	e						
10								e	e	e	e	e	e	e	e	e	e	e						
11								(2.1)	[3.0]	3.4	3.5	3.6f	3.7f	3.6	3.5	3.3	2.7	2.5						
12								b	b	b	b	b	#	a	a	b	a	a						
13								[2.9]	a	b	3.8	3.7f	b	3.9	(3.8)	3.9	3.8	3.8						
14								(2.5)	b	b	3.6	3.6f	3.8	3.8	3.5	3.3	3.0	#						
15							(1.8)	3.1	3.7	3.3	3.6	3.7	3.7	3.7	b	3.1	3.0	q						
16								b	b	b	3.5	3.7	3.7	3.7	3.6	3.2	3.0	3.0						
17								b	b	b	3.7	3.7	3.7	3.7	3.6	3.1f	2.8	q						
18								[2.2]	3.0	3.6	3.5	3.7	3.7	3.7	3.5	3.1	3.1f	2.4f						
19								b	3.5	3.4	3.6	3.6	3.6	3.6	3.4	3.1	e	e						
20								b	3.1	3.0	3.6	3.6	3.7	3.7	e	3.5	3.4	3.0f						
21								b	b	b	3.4	3.5	3.7	3.7	3.5	3.5	3.7	q						
22								b	3.0	3.1	3.5	3.6	3.7	3.5	3.5	3.0	3.0	b						
23								a	2.7f	3.3	3.5f	3.6	3.6	3.6	3.3f	3.0	3.0	q						
24								b	b	b	3.5	3.5	3.6	3.5	3.6	b	3.5	3.0						
25								b	3.0	3.0f	3.5	3.5	3.8f	3.6	b	b	2.8	3.0f						
26								2.1f	3.0	b	3.5	3.6	3.6f	3.5	3.5	3.4f	2.5f	2.0f						
27								b	e	e	3.6	b	b	a	q	3.0f	e	q						
28								b	b	3.0	3.5	3.5	3.6	3.5	3.5	3.0	3.0	3.1						
29								e	e	e	e	e	3.5f	3.7f	3.6f	3.5f	3.1f	3.0	b					
30								(2.0)	3.0	3.1f	3.5	3.6f	3.6	3.5	3.5	3.0	[3.0]	e						
31																								
Median						*	*	2.6	3.0	3.4	3.5	3.6	3.7	3.7	3.5	3.3	3.0	2.8						
No.								16	15	17	23	22	24	24	23	23	21	10						

18a

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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								230	230	240	240	200	200	220	220	230	230	230						
2								250	e	e	e	e	200	210	210	210	230	230						
3						250	250	220	b	b	b	b	b	200	210	240	250	q						
4								240	240	b	b	b	220	230	200	a	270	q						
5								230	b	210	#	b	200	220	200	220	b	b	q					
6								230	200	200	200	200	200	200	200	200	q							
7								e	230	200	200	180	180	200	220	220	190	240	q					
8								[240]	210	220	180	180	e	e	e	e	e	e						
9								210	q	240	200	#	e	e	e	e	e	e						
10								e	e	e	e	e	e	e	e	e	e	e						
11								q	270	220	200	180	190	210	230	230	230	230						
12								b	b	b	b	b	#	a	a	b	a	a						
13								240	a	b	b	210	b	220	(200)	230	240	220						
14								250	b	b	220	200	210	210	200	200	210	#						
15							(250)	220	200	210	200	200	[180]	#	b	210	220	q						
16								b	b	b	220	220	200	230	200	220	230	220						
17								b	b	b	200	200	200	200	180	200	220	q						
18								240	210	190	200	170	190	190	200	210	230	230						
19								b	250	220	210	200	200	200	210	220	e	e						
20								b	200	190	200	190	210	200	a	200	210	240						
21								b	b	220	200	200	210	230	220	240	q							
22								b	230	210	230	210	180	190	200	220	210	b						
23								a	200	180	180	240	180	200	200	200	200	q						
24								b	b	b	240	210	200	200	200	b	240	210						
25								b	230	200	200	200	180	190	b	b	220	220						
26								200	200	b	200	210	210	200	200	220	250	270						
27								b	e	e	210	b	b	a	q	220	a	q						
28								b	b	200	200	230	220	220	200	240	220	[250]						
29								e	e	e	e	e	200	180	200	210	240	240	b					
30								240	200	210	210	190	180	240	220	240	240	e						
31																								
Median						*	*	230	210	210	200	200	200	210	200	220	230	230						
No.								15	15	17	22	22	23	23	23	23	21	10						

18b

HOURLY VALUES OF  $f_oE$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0$  Mc/s in  $1m55s$

$157.5^\circ E$  Mean Time

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								2.2	2.3	b	b	b	2.8	2.9	2.8	2.5	2.3	1.9	(1.7f)					
2								1.8	e	e	e	e	2.9	2.7	2.6	2.4	2.0	1.7						
3								1.8	b	b	b	b	b	3.0	2.6	2.4f	2.0	1.9f						
4								b	b	b	b	b	b	2.5	2.5	b	#	b						
5								2.0	b	b	#	b	b	(2.7)	2.5	2.4	b	b						
6							b	1.9	2.2	2.5	2.6	2.6	2.7	2.6	2.5	2.3	2.0f	b						
7							b	1.7	2.1	2.3	2.5	2.6	3.1	2.7	b	2.4	2.0	(1.6)						
8								1.8	2.0	3.4	[2.5]	2.8	e	e	e	e	e	e						
9								1.6	b	(3.0)	3.0	#	#b	e	e	e	e	e						
10								e	e	e	e	e	e	e	e	e	e	e						
11								1.7	2.0	2.4	2.5	2.5	3.0	b	b	[2.1]	1.8	b						
12								b	b	b	b	b	#	#	#	#	#	#						
13								2.0	a	b	b	b	b	b	b	[2.2]	1.7	1.5						
14								b	b	b	b	a	(3.0)	2.7	b	b	b	#	b					
15							b	(1.5)	2.2	a	[2.5]	2.7	b	b	b	b	b	b						
16								b	b	b	(2.7)	2.5	[2.8]	2.9	[2.5]	2.3	1.9	1.7						
17								b	b	b	b	2.8	2.8	2.6	b	2.3	b	a						
18								a	2.2	2.7	2.5	2.6	2.8f	2.6	2.5	2.2	1.8	b	b					
19								b	b	b	2.5	2.5	2.6	2.5	2.4	b	e	e						
20							b	b	2.3	2.5	2.5	2.5	2.5	e	2.3	2.3	b	b						
21								b	2.1	2.4	2.5	2.6	2.5	2.8	2.8	[2.3]	b	b						
22								b	[2.2]	2.3	[2.7]	b	b	b	b	b	(1.7)	b						
23								a	b	2.3	2.5	2.5	2.5	2.6	2.5	b	b	b						
24								b	b	b	b	b	2.5	2.4	2.3	b	b	b						
25								b	b	2.1	2.5	b	2.7	a	b	b	b	b						
26								e	1.8	b	2.5	b	2.7	2.5	2.1	2.1	2.1	1.6f						
27								b	e	e	b	b	b	b	b	2.1	e	2.0						
28								b	b	2.2	2.5	2.8	b	b	2.3	2.0	b	b						
29							e	e	e	e	e	b	2.6	2.6	2.1	2.0	b	b						
30								1.4	1.9	2.1	2.5	2.5	2.7	2.8	b	2.0	2.0	e						
31																								
Median								1.8	2.2	2.4	2.5	2.6	2.7	2.6	2.5	2.3	2.0	1.7	*					
No.								13	12	13	17	14	18	18	16	18	12	8						

19a

HOURLY VALUES OF  $h^oE$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0$  Mc/s in  $1m55s$

$157.5^\circ E$  Mean Time

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	b	b	b	100	100	100	110	100	120	120					
2								110	e	e	e	e	100	100	100	100	100	100						
3								100	b	b	b	b	b	100	100	100	100	110						
4								b	b	b	b	b	b	100	100	b	#	b						
5								110	b	b	#	b	b	b	100	100	b	b						
6							b	e	100	100	100	100	100	100	100	100	100	b						
7							b	100	100	100	100	100	100	110	b	100	120	b						
8								100	100	[100]	100	100	e	e	e	e	e	e						
9								100	b	e	(100)	#	#b	e	e	e	e	e						
10								e	e	e	e	e	e	e	e	e	e	e						
11								100	100	100	100	100	100	b	(100)	100	[120]	b						
12								b	b	b	b	b	#	#	#	#	#	#						
13								100	a	b	b	b	b	b	b	[110]	110	100						
14								b	b	b	b	a	a	100	b	b	b	#	b					
15							b	b	100	a	100	100	b	b	b	b	b	b						
16								b	b	b	b	100	b	100	b	100	100	100						
17								b	b	b	b	100	100	100	b	100	b	a						
18								a	100	100	100	100	100	100	100	100	90	b	b					
19								b	b	b	100	100	100	100	100	b	e	e						
20							b	b	100	100	100	100	100	e	100	100	b	b						
21								b	100	100	100	100	100	100	100	100	b	b						
22								b	b	100	b	b	b	b	b	b	b	b						
23								a	b	100	100	100	100	100	110	b	b	b						
24								b	b	b	b	b	100	100	110	b	b	b						
25								b	b	90	b	b	90	100	b	b	b	b						
26								e	100	b	100	b	100	100	100	100	120	100						
27								b	e	e	b	b	b	b	b	100	e	100						
28								b	b	100	100	100	b	b	100	100	b	b						
29							e	e	e	e	e	b	100	e	100	100	b	b						
30								100	100	100	110	120	120	#	b	120	120	e						
31																								
Median								100	100	100	100	100	100	100	100	100	100	100	*					
No.								11	11	12	14	14	16	16	16	18	11	7						

19b



HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1m5s$

$157.5^\circ E$  Mean Time

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	4.5	5.1	4.0	3.9	4.0	2.6	3.3	2.7	g	g	g	g	g	g	g	g	g	2.1	2.5	2.5	2.8	e	2.1	3.6	
2	e	e	2.6	e	e	(2.7)	2.2	1.9	e	e	e	e	g	g	g	g	g	e	e	e	e	4.7	4.7	4.5	
3	4.2	[2.2]	5.6	4.0	e	1.7	e	g	g	g	g	g	g	g	g	g	g	3.6	4.9	4.7	e	6.0	4.1f	4.6f	
4	e	4.5	2.5	1.5	e	e	4.0	g	g	g	g	g	[2.9]	g	2.7	4.6	g	2.7f	2.2f	4.2	#	4.7	4.7	4.7	
5	2.5	2.2	e	e	e	2.6	2.6	2.7	g	g	g	g	g	g	g	g	g	g	3.5	5.0	4.5	5.3	4.0	4.0	
6	3.5f	2.4	e	e	e	e	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	2.7	3.7	6.5	4.2f
7	4.2	3.2	2.5	2.0	e	e	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	e	e	e	
8	3.3	e	2.1	1.9	4.1	1.8	e	2.1	2.2	g	g	g	e	e	e	e	e	e	e	e	e	e	e	e	
9	e	2.2	2.3	2.1	2.9	2.1	1.9	g	e	g	g	#	#	e	e	e	e	e	e	e	e	e	e	e	
10	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
11	4.5	2.2	2.2	3.8	4.0	e	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	e	e	4.5	2.2
12	2.5	2.2	4.0	4.5	4.0	e	e	g	g	g	g	g	e	4.4	4.0	g	3.8	5.6	7.0	5.8	4.5	5.8	6.0f	4.5	
13	4.5f	5.0	4.5	2.1	e	1.9	2.2	3.2	4.0	g	g	g	g	g	g	3.9	4.5	4.0	2.2	2.2	2.4f	3.5	4.0	4.3	
14	e	e	2.4	4.2	e	3.0	3.8	g	g	g	g	2.9	3.3	g	g	g	g	g	g	g	2.3	e	6.3	4.6	4.5
15	3.7	e	3.2	1.3	e	e	e	1.7	g	2.9	g	g	g	g	g	g	g	g	g	4.0	3.1	e	e	e	
16	e	e	e	e	e	2.4f	3.0	g	g	#	g	g	3.0	g	g	g	g	g	g	5.2	2.1f	b	2.7	4.8	4.7
17	3.2f	e	e	e	e	2.2	2.4	g	g	g	g	g	g	g	g	g	g	g	1.7	2.1	e	3.5	4.3	4.8	3.1
18	3.0f	2.5f	3.4	3.3	e	3.7	3.0	2.9	g	2.7	g	3.1	2.9	g	g	2.3	1.9	g	g	2.4	5.3	4.3	4.8	4.5	
19	3.2	4.2	4.2	1.7	e	3.0	2.6	g	g	g	2.8	g	g	g	2.8	g	e	e	e	e	e	e	e	3.5	
20	3.7f	4.2	5.1	4.2	3.0	g	g	g	2.5	g	g	g	2.8f	e	g	g	g	2.9f	1.9	3.4f	4.2	5.4f	4.9f	[4.3]	
21	4.2	4.0	3.0	3.1	3.5	4.9	[3.0]	b	g	g	g	g	2.7	g	g	2.5	g	3.3	4.5	3.6	2.6	5.0	5.2	5.6	
22	4.3	4.2f	4.2f	4.0	3.1	3.2	3.0	g	3.8	g	g	g	g	g	g	g	g	2.2	1.8	e	3.0	4.2	3.3	5.6	
23	3.2f	2.7	2.4	e	e	3.3	(2.0)	2.4	g	g	g	g	g	2.5	g	g	g	g	2.8	4.2	4.7	e	5.7	5.7	
24	4.2	e	5.0f	4.2f	3.6	3.6	3.3	g	g	g	g	g	g	g	g	g	g	g	g	3.2	5.1	5.7	5.0	6.7	5.4
25	4.2	7.5	3.8	3.3	3.2f	3.0	3.2	g	g	g	g	g	3.2	3.3	g	3.2	3.0	2.1	2.1	4.3	e	6.0	3.6	3.2f	
26	2.7	2.2	2.3	b	b	b	b	1.6	g	b	g	3.6	g	g	2.1	g	2.5	3.8	3.9	3.2	3.5	6.0	4.2	6.5f	
27	4.3f	e	(4.0)	3.6	3.2	e	3.2	1.5	e	e	2.6	g	g	5.0	g	2.6	e	4.2	5.3	5.0	4.5	6.5	5.2	5.2	
28	5.5	4.2f	4.2	4.2	3.0	3.7	3.7f	g	g	g	g	g	g	g	g	1.9	2.0	g	e	e	4.4	e	(1.9)	3.1	
29	3.1f	3.3f	3.2f	2.2	e	e	e	e	e	e	e	e	b	2.6	g	g	g	g	e	e	e	e	3.7	4.7	
30	3.8	3.5	3.0	2.8	4.0	2.3	2.3	3.2	2.2	2.4	g	g	g	g	g	g	g	e	e	e	e	e	e	e	
31																									
Median	3.8	2.7	3.1	3.0	2.9	2.4	2.4	**	**	**	**	**	**	**	**	**	**	1.7	2.2	2.8	3.2	4.5	4.6	4.5	
No.	26	25	28	26	25	26	27	27	26	24	26	26	26	26	27	27	25	24	24	24	20	24	24	25	

20a

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING APRIL 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1m5s$

$157.5^\circ E$  Mean Time

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	100	100	100	100	100	100	g	g	g	g	g	g	g	g	g	150	200	200	170	e	200	100	
2	e	e	100	e	e	100	100	110	e	e	e	e	g	g	g	g	g	g	e	e	e	100	100	100	
3	130	100	100	100	e	100	e	g	g	g	g	g	g	g	g	g	g	130	100	100	e	100	100	100	
4	e	100	100	120	e	e	100	g	g	g	g	g	120	g	150	100	g	120	110	100	#	100	100	100	
5	100	100	e	e	e	100	110	140	g	g	g	g	g	g	g	g	g	g	120	100	110	100	100	100	
6	100	150	e	e	e	e	e	g	g	g	g	g	g	g	g	g	g	e	e	e	100	120	110	100	
7	100	100	110	130	e	#	e	g	g	g	g	g	g	g	g	g	g	g	e	e	e	e	e	e	
8	100	#	100	150	120	150	e	100	110	g	g	g	e	e	e	e	e	e	e	e	e	e	e	e	
9	e	100	100	100	100	100	100	g	e	g	g	#	#	e	e	e	e	e	e	e	e	e	e	e	
10	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
11	100	100	100	110	100	e	e	g	g	g	g	g	g	g	g	g	g	g	e	e	e	e	e	100	100
12	100	110	100	100	100	e	e	g	g	g	g	g	#	100	110	g	120	110	100	100	110	100	100	100	
13	100	100	100	175	e	100	130	120	100	g	g	g	g	g	g	130	120	110	100	110	100	140	100	100	
14	e	e	100	100	e	100	100	g	g	g	g	100	80	g	g	g	g	e	g	100	#	80	80	100	
15	100	e	100	120	e	e	e	100	g	110	g	g	g	g	g	g	g	g	100	100	e	e	e	e	
16	e	e	e	e	e	100	100	g	g	#	g	g	110	g	g	g	g	g	100	100	b	120	100	100	
17	140	e	e	e	e	110	100	g	g	g	g	g	g	g	g	g	g	100	100	e	100	100	110	100	
18	180	110	100	100	e	100	120	100	g	110	g	100	100	g	g	100	90	g	g	100	110	110	100	100	
19	100	100	100	120	e	100	110	g	g	g	120	g	g	g	100	g	e	e	e	e	e	e	e	100	
20	100	100	100	100	100	g	g	g	110	g	g	g	100	e	g	g	g	150	130	100	100	100	100	100	
21	100	100	100	100	100	100	90	b	g	g	g	g	100	g	g	g	100	g	100	100	130	100	110	100	
22	100	100	90	90	80	100	100	g	100	g	g	g	g	g	g	g	150	120	e	150	100	100	100	110	
23	100	100	100	e	e	100	(100)	100	g	g	g	g	g	100	g	g	g	g	150	120	110	e	100	100	
24	100	e	120	110	100	100	100	g	g	g	g	g	g	g	g	g	g	g	140	100	100	100	100	100	
25	100	90	100	100	100	100	100	g	g	g	g	g	100	100	g	100	100	100	110	110	e	180	100	100	
26	100	100	100	b	b	b	b	90	g	b	g	100	g	g	100	g	170	100	140	140	130	110	100	100	
27	100	e	(100)	100	100	e	100	100	e	e	100	g	g	100	g	140	e	100	100	100	100	100	100	100	
28	100	90	90	100	100	100	100	g	g	g	g	g	g	g	g	100	100	g	e	e	100	e	(130)	100	
29	100	100	100	100	e	e	e	e	e	e	e	e	b	150	g	g	g	g	e	e	e	e	e	100	100
30	100	100	100	150	110	110	100	100	100	110	g	g	g	g	g	g	g	e	e	e	e	e	e	e	
31																									
Median	100	100	100	100	100	100	100	100	100	*	*	*	100	*	*	100	110	110	110	100	110	100	100	100	
No.	24	21	25	22	13	19	19	11	5				8			7	6	12	17	17	15	18	24	25	

20b

HOURLY VALUES OF  $f_o F_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	2.0	1.5f	g	g	g	2.0	3.3	3.8	4.1	4.1	4.5	4.9	4.8	5.0	4.0	4.1	3.3	2.7	2.0f	a	a	a	
2	a	b	b	b	a	b	b	2.0	3.5	4.1	4.2	5.0	4.9	5.0f	5.3	5.8	3.0f	1.8f	1.7f	[1.7]	a	2.7	2.1f	a	
3	2.1	2.5	a	b	a	a	a	2.5f	3.5f	3.8	4.8	5.0	5.3	5.3	5.3	4.7	5.0	4.0f	3.0f	1.9f	a	a	a	2.0	
4	2.0	1.9	1.8	a	2.2	1.8	a	1.7	3.2	3.7	4.2	4.5	4.5	4.6	5.1	4.8	4.5	4.8	3.5	[2.8]	a	2.8	a	a	
5	a	2.1	a	2.8	2.0	a	a	a	3.2	3.7	b	b	b	4.4	4.2	4.1	4.0	3.6	2.1	2.1	2.1	2.0	a	a	
6	a	a	a	a	a	a	a	2.0f	3.3	3.8	4.3	4.6	5.1	5.0	5.0	4.6	4.7	4.2	2.1f	2.2	2.3	b	b	a	
7	a	b	b	a	b	a	b	2.0	3.6	4.0	4.3	4.5	5.0	5.1	5.0	5.0	4.7	4.2	3.5	3.0f	1.9f	[1.7f]	g	[3.0]	
8	3.0	a	2.8f	[2.3f]	1.6	g	g	2.0f	3.7	4.1	4.6	5.5	5.5	5.7	5.2	5.5	5.3	4.4	3.2f	2.0f	g	[3.2]	3.2	a	
9	3.0	3.3	a	a	3.5f	2.7f	1.9f	2.1f	3.5	4.2	4.8	4.8	5.2	5.4	4.9f	4.8	a	3.8f	2.8f	1.9f	2.0	2.0	a	a	a
10	a	a	a	a	a	b	a	a	3.3	3.7	3.8	4.2	4.3	4.2	4.2	4.2	4.1	3.7f	2.0f	1.7f	1.7f	a	a	2.0	
11	a	a	a	a	a	a	a	[1.5f]	3.0	3.6	4.0	4.3	4.4	4.3	4.0	[4.5]	4.2	[3.7]	2.2	a	a	a	a	a	
12	a	a	a	a	c	c	b	b	3.0	3.5	3.8	[4.0]	b	[4.5]	4.1	5.0	3.4	3.2	2.8f	2.6	1.8f	a	a	a	
13	a	a	a	a	a	1.5	a	1.8f	3.2	3.8	3.8	4.3	4.3	4.5	4.3	4.5	4.3	3.8	3.1	1.8f	a	a	(2.0)	(2.1)	
14	a	a	2.0	1.6f	1.4	a	a	a	3.0	3.6	3.9	4.2	4.5	4.5	4.8	4.1	4.6	4.0	2.4f	1.8f	a	2.4	a	a	
15	(1.5)	a	[1.4]	a	a	a	a	1.5f	3.0f	3.4f	4.0	4.0f	4.8	4.7	4.2f	4.5	4.5	4.3	3.3f	1.9f	a	a	c	c	
16	2.2f	a	a	2.8f	2.0f	2.4f	1.7	1.5f	3.1	4.3	4.0	4.4	4.9f	4.7f	4.6f	4.9	4.0	2.8	2.8f	2.7f	1.7f	[1.8]	2.0f	[1.7]	
17	a	[1.6]	a	a	[2.0]	2.0f	1.8f	b	2.8f	4.0	3.8f	4.6	4.9	c	c	c	c	c	c	c	1.7f	[1.7]	b	b	
18	a	a	a	a	a	a	b	2.5	3.1	4.0	4.0	4.3	5.0	4.5	5.5	5.5f	5.0f	4.0	2.3f	[1.7f]	c	c	a	a	
19	c	c	c	1.9	a	a	a	a	3.2	3.8	3.3	3.0	3.7	3.9	4.5	4.5	a	c	a	b	3.8	2.0	(1.6)	a	
20	a	(1.8)	b	a	a	a	1.7f	2.8	3.2	3.8	4.0	4.4	4.2	4.5	b	4.0	c	3.2	(2.2)	(2.2)	2.1	(2.1)	a	2.0	
21	a	a	1.6	(1.4)	a	b	(1.7)	a	a	a	3.8	4.0	4.0	3.9	4.0	4.0	3.1	2.1f	a	a	b	a	2.3f	a	
22	1.7f	1.7	a	a	a	a	a	2.5f	3.2	3.4	3.8	4.4	4.5	3.8	3.6	3.8	4.0	2.6	a	2.8f	2.0	1.7	2.1f	a	
23	a	a	a	b	a	a	a	(1.7f)	2.8f	3.5f	3.9	4.0f	4.4	4.0f	4.3	4.2	4.3	3.4	2.4	1.9f	2.0	1.7	c	a	
24	a	(2.0)	1.8	a	a	a	a	a	2.6	3.4	3.9	4.5	4.1	4.6	[4.3]	4.0	3.7	1.8	[1.8]	a	a	2.1	2.0	1.9	
25	a	1.9	1.8	1.6	1.7	1.7	b	a	2.8	3.6	4.0	4.1	4.1	4.1	4.0	4.6	3.9	3.5	2.5	[1.7]	1.8	a	a	a	
26	1.9	a	a	a	a	a	a	a	2.6	3.6	3.8	4.2	4.7	4.2	4.5	4.4	4.2	3.7	3.0	1.7	c	a	[2.0]	a	
27	a	a	a	a	a	a	a	a	3.5	a	4.1	4.2	4.2	4.2	4.2	4.1	4.0	b	1.8	(2.1)	2.9	2.5	2.2	a	
28	a	a	a	a	a	b	b	a	2.5	3.4	3.7	4.0	4.5	4.5	4.3	4.8	4.0	3.4	2.8f	1.8f	[1.6]	a	1.8	1.8	
29	a	a	1.8	1.8	1.8	1.8	a	a	2.7	3.7	4.1	4.4	4.8	4.7	4.6	4.7	4.7	3.5	2.0	[3.2]	2.0	a	a	1.6	
30	a	a	a	a	1.5	c	a	1.9	2.7f	3.3	3.7f	3.8f	3.8	4.0	3.9	4.1	3.5	3.0	2.1f	1.7	a	a	a	2.2	
31	2.1	a	2.0	1.8	[1.7]	g	a	a	2.0	3.4	4.2	4.6	4.3	4.0	4.0	4.1	3.8	3.5	2.7	2.0	1.6f	a	a	a	
Median	(2.1)	(1.9)	1.8	1.8	1.8	1.8	(1.7)	2.0	3.1	3.7	4.0	4.4	4.5	4.5	4.5	4.5	4.1	3.6	2.4	2.0	2.0	2.0	2.0	2.0	
No.	9	9	10	10	12	10	6	18	29	30	28	30	29	30	29	30	27	28	28	26	20	14	10	12	

HOURLY VALUES OF  $h' F_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	210	320	g	g	g	250	230	220	260	270	260	250	240	250	230	230	220	240	270	a	a	a	
2	a	b	b	b	a	b	b	260	230	200	200	210	240	260	250	250	240	250	220	[180]	a	270	250	a	
3	370	c	a	b	a	a	a	230	220	230	220	250	240	240	240	230	200	220	300	a	a	a	320	a	
4	350	370	a	a	300	300	a	270	230	250	230	290	280	250	240	240	230	240	250	230	a	320	a	a	
5	a	u	a	320	270	a	a	a	260	260	b	b	b	280	350	250	250	240	250	320	300	300	a	a	
6	a	a	a	a	a	a	a	300	220	230	230	270	250	240	240	240	250	240	310	300	[260]	b	b	a	
7	a	b	b	a	b	a	b	230	210	220	240	250	250	250	250	250	230	200	220	220	250	[300]	g	350	
8	320	a	300	300	300	270	g	240	240	230	220	250	240	230	230	240	220	220	220	230	g	[350]	300	a	
9	[250]	[270]	a	a	270	250	250	250	240	290	320	300	270	280	300	a	270	250	[320]	350	a	a	a	a	
10	a	a	a	a	a	b	a	a	260	250	230	330	300	280	260	280	250	240	280	320	a	a	a	220	
11	a	a	a	a	a	a	a	[300]	240	250	250	260	300	300	270	320	260	[430]	300	a	a	a	a	a	
12	a	a	a	a	c	c	b	b	210	240	270	250	b	290	250	270	250	220	250	250	[300]	a	a	a	
13	a	a	a	a	a	320	a	280	240	220	270	280	270	280	250	250	250	250	300	300	a	a	360	360	
14	a	a	330	270	270	a	a	a	230	240	260	300	250	310	270	240	240	250	260	300	a	300	a	a	
15	a	a	a	a	a	a	a	340	250	220	240	220	260	250	240	230	220	220	230	[270]	a	a	c	c	
16	270	a	a	310	250	270	280	270	240	240	240	270	250	250	250	240	220	220	250	250	[300]	c	250	c	
17	a	[330]	a	a	[420]	300	220	b	c	230	230	240	250	c	c	c	c	c	c	c	c	280	320	b	b
18	a	a	a	a	a	a	b	350	240	240	250	280	230	230	250	260	240	220	220	f	c	c	a	a	
19	c	c	c	300	a	a	a	a	220	260	210	240	250	230	250	280	a	c	a	b	370	(320)	330	a	
20	a	(400)	b	a	a	a	(370)	250	240	260	310	320	290	290	b	220	c	210	a	a	280	(250)	a	290	
21	a	a	320	(300)	a	b	b	350	a	a	a	200	320	290	270	270	270	250	250	a	a	b	a	290	
22	280	300	a	a	a	a	a	230	270	250	250	250	240	380	300	290	250	250	a	290	260	280	260	a	
23	a	a	a	b	a	a	a	320	230	230	270	220	270	230	250	250	230	230	350	320	270	(370)	440	a	
24	a	(400)	400	a	a	a	a	a	230	250	270	260	260	260	220	250	250	250	380	a	a	320	280	280	
25	a	230	320	310	300	[320]	b	a	240	250	250	270	270	270	260	240	220	220	250	280	350	a	a	a	
26	380	a	a	a	a	a	a	a	240	240	240	250	270	250	250	240	230	250	220	300	c	a	a	270	
27	a	a	a	a	a	a	a	a	a	250	a	250	270	280	280	250	200	(230)	270	a	300	330	270	a	
28	a	a	a	a	a	b	b	a	240	250	250	240	240	230	240	240	220	250	210	250	[330]	a	350	300	
29	a	a	250	[250]	[350]	280	a	a	230	250	250	270	260	260	270	250	250	290	300	240	290	a	a	290	
30	a	a	a	a	c	c	a	350	220	220	220	250	240	270	230	240	230	220	250	[300]	a	a	340	270	
31	350	a	[350]	350	c	g	a	a	200	250															

HOURLY VALUES OF  $f_p F_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND.

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	250	320	e	c	e	250	240	250	270	u	u	250	250	250	230	270	260	270	280	a	a	a
2	a	b	b	b	a	b	b	280	240	210	230	u	240	260	250	270	260	250	e	e	a	290	250	a
3	a	e	a	b	a	a	a	240	230	230	230	250	250	240	250	250	250	230	250	300	a	a	a	e
4	e	e	e	a	300	310	a	280	230	250	230	u	u	250	240	240	250	250	270	e	a	340	a	a
5	a	u	a	330	280	a	a	a	260	u	b	b	b	u	u	280	280	270	260	320	300	e	a	a
6	a	a	a	a	a	a	a	300	250	240	240	270	250	240	250	250	250	270	310	300	[260]	b	b	a
7	a	b	b	a	b	a	b	240	220	240	250	250	250	250	270	250	250	230	250	250	250	e	g	350
8	350	a	300	300	u	u	g	250	250	230	250	250	250	240	240	250	240	260	250	240	g	g	300	a
9	320	300	a	a	270	250	250	260	250	250	300	320	310	270	280	310	a	280	260	[320]	350	a	a	a
10	a	a	a	a	a	b	a	a	[260]	260	250	u	u	u	280	290	270	250	290	280	320	a	a	220
11	a	a	a	a	a	a	a	u	250	250	250	260	u	u	e	320	260	[430]	300	a	a	a	a	a
12	a	a	a	a	e	c	b	b	220	250	u	270	b	u	260	280	250	240	290	270	e	e	a	a
13	a	a	a	a	a	e	a	280	250	220	u	u	u	u	290	250	250	290	330	e	a	a	q	q
14	a	a	e	270	e	e	a	a	280	240	270	u	u	u	270	250	270	300	270	e	a	e	a	a
15	a	a	a	a	a	a	a	u	250	240	240	230	260	250	240	250	250	250	250	280	e	e	e	e
16	300	a	a	310	250	270	280	270	240	250	240	280	250	250	250	250	260	250	280	280	[300]	e	250	e
17	a	e	e	a	e	300	220	b	e	230	230	240	250	e	e	e	e	e	e	e	e	e	b	b
18	a	a	a	a	a	a	b	e	250	240	250	290	u	270	260	270	250	250	220	f	e	e	a	a
19	e	e	e	300	a	e	a	a	220	280	u	u	u	230	250	280	e	a	b	370	u	340	a	a
20	a	u	b	a	a	a	u	270	240	260	u	u	u	290	b	230	e	220	a	a	290	u	a	290
21	a	a	u	u	a	b	b	u	a	a	a	260	u	u	300	270	280	280	250	a	a	b	a	u
22	280	e	a	a	a	a	e	250	280	270	270	270	u	u	u	310	260	260	e	290	270	u	270	a
23	a	a	a	b	a	a	a	u	260	240	u	250	270	u	250	260	280	290	350	320	270	e	e	a
24	a	e	e	a	a	a	a	u	250	270	u	270	260	230	260	260	250	u	a	a	a	e	e	e
25	a	e	320	e	e	320	b	a	250	250	260	u	u	280	260	250	250	270	270	e	e	a	a	a
26	u	a	a	a	a	a	a	a	250	250	250	260	270	250	250	240	230	260	240	e	e	e	a	270
27	e	a	e	e	e	e	e	e	250	e	250	u	u	280	250	250	b	u	a	340	330	e	a	a
28	a	a	a	a	a	b	b	a	250	250	250	240	u	240	250	250	250	250	250	250	e	a	e	e
29	a	a	e	e	e	e	a	a	250	250	260	u	260	260	280	270	270	350	300	280	300	a	a	e
30	a	a	a	a	e	e	a	u	250	260	230	250	270	u	u	250	250	280	250	e	a	a	a	e
31	e	a	e	e	e	g	a	a	200	250	u	u	270	270	250	260	250	250	270	270	e	a	a	a
Median	*	*	*	(305)	*	(305)	*	265	250	250	250	255	260	250	250	250	250	260	265	280	300	*	(285)	*
No.				6		6		12	27	29	22	18	15	19	25	30	27	28	24	16	15		6	

HOURLY VALUES OF  $(M3000)F_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	3.2	3.3	g	g	g	3.2	3.6	3.4	3.2	3.4	3.5	3.5	3.3	3.5	3.7	3.3	3.4	3.3	3.0	a	a	a	
2	a	b	b	b	a	b	b	3.2	3.4	3.2	3.6	3.7	3.4	3.4	3.5	3.3	3.4	3.6	3.6	3.5	a	3.1	3.2	a	
3	3.0	e	a	b	a	a	a	3.7	3.7	3.7	3.6	3.5	3.5	3.6	3.5	3.3	3.3	3.5	3.3	3.0	a	a	a	3.0	
4	3.1	2.8	2.9	a	3.1	2.8	a	3.3	3.7	3.5	3.5	3.4	3.2	3.4	3.6	3.5	3.5	3.3	3.2	[3.8]	a	3.0	a	a	
5	a	3.2	a	2.9	3.2	a	a	a	3.2	3.5	b	b	b	3.2	2.9	3.4	3.3	3.2	3.2	3.2	3.1	3.5	a	a	
6	a	a	a	a	a	a	a	2.8	3.5	3.6	3.6	3.3	3.4	3.5	3.5	3.4	3.5	3.2	3.2	3.2	3.2	b	b	a	
7	a	b	b	a	b	a	b	3.7	3.7	3.7	3.5	3.5	3.4	3.6	3.3	3.4	3.3	3.4	3.5	3.2	3.2	3.2	g	2.8	
8	2.8	a	3.1	2.8	3.3	g	g	3.6	3.6	3.7	3.7	3.5	3.6	3.6	3.6	3.5	3.6	3.3	3.4	3.7	g	[2.8]	3.1	a	
9	3.0	3.0	a	a	3.2	3.3	3.2	2.9	3.7	3.4	3.1	3.1	3.2	3.3	3.1	2.9	a	3.1	3.1	3.2	3.2	a	a	a	
10	a	a	a	a	a	b	a	a	3.4	3.5	3.3	2.9	3.2	3.4	3.2	3.1	3.1	3.1	3.2	3.7	3.6	a	a	3.5	
11	a	a	a	a	a	a	a	[3.3]	3.4	3.6	3.4	3.4	3.2	3.2	3.1	3.0	3.2	[2.6]	3.0	a	a	a	a	a	
12	a	a	a	a	e	e	b	b	3.7	3.5	3.3	3.2	b	3.3	3.2	3.2	3.4	3.4	3.0	3.3	3.3	e	a	a	
13	a	a	a	a	a	3.2	a	3.5	3.3	3.7	3.5	3.3	3.4	3.3	3.2	3.4	3.3	3.1	3.0	3.3	a	a	q	q	
14	a	a	3.2	3.5	3.3	e	a	a	3.7	3.6	3.2	3.2	3.4	3.1	3.2	3.5	3.3	3.1	3.2	3.5	a	3.1	a	a	
15	[3.1]	a	[3.0]	a	a	a	a	3.3	3.4	3.7	3.6	3.5	3.9	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	e	e	e	
16	3.1	a	a	3.2	3.3	3.1	3.5	3.6	3.5	3.5	3.4	3.3	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.1	3.2	3.1	3.2	3.2	
17	a	3.0	e	a	[2.9]	3.3	3.7	b	e	3.8	3.5	3.4	3.5	e	e	e	e	e	e	e	e	3.4	[3.3]	b	b
18	a	a	a	a	a	a	b	e	3.4	3.6	3.6	3.2	3.7	3.2	3.3	3.2	3.2	3.3	3.4	f	e	e	a	a	
19	e	e	e	3.3	a	e	a	a	3.7	3.2	3.2	3.4	3.5	3.6	3.4	3.3	e	e	a	b	2.8	3.2	e	a	
20	a	3.0	b	a	a	a	3.2	3.4	3.6	3.3	3.3	3.1	3.1	3.3	b	3.6	e	3.8	(3.0)	(3.0)	3.3	3.1	a	3.3	
21	a	a	3.1	(3.0)	a	b	b	(2.8)	a	a	a	3.2	3.2	3.3	3.1	3.2	3.2	3.3	3.3	a	a	b	a	3.3	
22	3.2	3.1	a	a	a	a	e	3.5	3.2	3.1	3.1	3.1	3.3	2.8	3.2	3.0	3.2	3.2	e	3.2	3.2	3.3	3.2	a	
23	a	a	a	b	a	a	a	2.7	3.3	3.4	3.4	3.2	3.2	3.4	3.3	3.2	3.2	3.2	2.7	3.2	3.1	3.1	e	a	
24	a	2.8	2.8	a	a	a	a	a	3.6	3.6	3.3	3.6	3.4	3.3	3.4	3.4	3.2	3.7	2.8	a	a	3.1	3.2	3.3	
25	a	3.7	3.2	3.2	3.2	3.2	b	a	3.5	3.6	3.4	3.5	3.5	3.2	3.4	3.4	3.2	3.2	3.1	[3.3]	2.9	a	a	a	
26	2.8	a	a	a	a	a	a	a	3.7	3.6	3.5	3.5	3.3	3.5	3.4	3.5	3.4	3.3	3.3	3.3	e	e	a	3.6	
27	e	a	e	e	e	e	e	e	3.4	e	3.4	3.4	3.3	3.2	3.6	3.3	b	3.2	2.7	2.8	3.1	[2.8]	a	a	
28	a	a	a	a	a	b	b	a	3.5	3.6	3.6	3.5	3.5	3.4	3.3	3.5	3.2	3.3	3.3	3.3	3.2	a	2.9	3.2	
29	a	a	3.3	2.7	2.7	3.2	a	a	3.5	3.4	3.6	3.3	3.3	3.2	3.2	3.2	2.9	3.2	3.1	3.2	a	a	a	3.2	
30	a	a	a	a	e	e	a	2.8	3.2	3.4	3.3	3.5	3.2	3.2	3.5	3.3	3.5	3.2	3.3	3.1	a	a	a	2.9	
31	3.0	a	2.8	3.0	[2.9]	g	a	a	3.8	3.6	3.6	3.7	3.4	3.2	3.5	3.4	3.4	3.2	3.2	3.3	3.2	a	a	a	
Median	(3.0)	(3.0)	3.1	3.1	3.2	3.2	(3.2)	3.3	3.5	3.6	3.4	3.4	3.4	3.3	3.3	3.4	3.3	3.2	3.2	3.3	3.2	3.1	(3.2)	3.2	
No.	9	8	10	10	11	10	6	17	28	30	28	30	29	30	29	30	27	28	28	25	19				

HOURLY VALUES OF  $f_o F_1$  OBSERVED DURING MAY 1955 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								a	[2.8]	q	3.2f	3.5	3.5	3.5	3.3	3.0	3.0							
2								q	[2.7]	[2.7]	3.5	3.5	3.5f	3.5f	3.5	3.3	2.1f	q						
3								2.0f	2.7f	3.1	3.5	3.5	3.5	3.5	3.2	[3.2]	q							
4									[2.5]	[2.7]	2.5	3.5	3.5	3.5	3.5	3.0	3.0	3.0						
5								q	[2.2]	3.0	b	b	b	3.3	3.5	3.0	q							
6								q	a	[2.9]	3.0	3.5	3.5	3.5	3.3	3.0	3.0	q						
7								q	[2.7]	3.0	3.0	3.5	3.5	3.5	3.0	3.0	3.0	q						
8								q	[3.0]	3.0	3.0	3.6	3.6	3.5	[3.0]	[3.0]	[3.0]	q						
9								q	2.8	3.5	3.7	3.5	3.5	3.5f	a	a	q							
10								a	a	2.9	[2.7]	3.5	3.5	3.5	3.0	3.0	[2.1]	q						
11								f	[2.1]	2.9	3.0	3.5f	3.5	3.5	a	3.2	[2.5]	q						
12								b	2.3	2.5	[3.1]	b	b	b	[3.0]	[3.2]	q							
13								q	2.0	2.8	3.1	3.4	3.5	3.4	3.1	2.8	3.0	q						
14								a	2.2	2.8	3.1	3.5	3.5	3.5	3.2	2.7	3.0	q						
15								q	2.2f	2.5f	3.2f	3.1f	3.2	3.2	3.0	[2.7]	q							
16								q	2.0	3.3	3.2	3.2	3.7f	3.0	3.1	2.7	q							
17								b	e	[3.0]	3.0	3.5f	3.5	e	e	e	e	e						
18								q	[2.0]	2.7	2.7	3.5	3.5	3.5	3.3	[3.0]	q							
19								q	2.7	2.5	2.3	2.9	2.5	3.0	3.0	s	e							
20								2.1	(2.3)	2.7	3.5	3.3	3.3	(3.5)	b	b	e	2.5						
21								b	b	b	b	b	3.5	3.4	3.0	2.7	3.0	b						
22								a	(2.6)	(2.5)	b	(3.0)	(3.5)	3.4	3.3	3.0	3.1	b						
23								q	3.2	q	3.1f	3.3	3.0	q										
24								a	[2.0]	b	[3.3]	3.5	[3.0]	[3.0]	q									
25								q	[3.0]	3.0	3.5	3.3	3.0	3.0	a	b	b							
26								a	q	[2.7]	3.0	3.2	3.5	3.0	3.0	3.0	3.0	q						
27								q	b	s	3.0	3.3	3.5	3.0	3.0	q								
28								q	[2.5]	3.0	3.3	3.2f	3.0	2.5	2.5	q								
29								q	[2.9]	3.0	3.3	3.4f	3.2	3.0	q									
30										q	3.0f	3.3	3.1	3.2	2.4	2.5	q							
31								q	q	[2.5]	3.3	3.2	2.8	q										
Median								*	(2.3)	2.8	3.0	3.5	3.5	3.4	3.0	3.0	3.0	*						
No.									17	24	26	27	29	29	26	23	14							

HOURLY VALUES OF  $h^* F_1$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								a	[220]	q	190	200	200	210	200	240	220							
2								q	210	200	200	200	200	210	220	230	220	q						
3								230	200	180	200	210	200	220	200	230	q							
4									220	230	210	200	200	200	200	210	220	200						
5								q	250	250	b	b	b	220	240	230	q	q						
6								q	a	220	210	240	230	200	200	230	240	q						
7								q	200	200	200	200	200	250	210	240	220	q						
8								q	220	220	200	200	210	220	[230]	230	220	q						
9									q	200	230	250	240	250	240	a	a	q						
10								a	a	240	200	220	220	230	220	220	230	q						
11								f	230	230	220	200	210	220	a	250	240	q						
12								b	200	220	240	b	b	b	240	260	q							
13								q	220	200	210	240	230	230	230	230	250	q						
14								a	210	200	240	200	200	230	220	220	240	q						
15								q	200	e	200	200	230	210	200	210	q							
16								q	220	200	220	220	200	180	210	240	q							
17								b	e	220	200	200	220	e	e	e	e	e						
18								q	220	200	200	270	220	220	230	[260]	q							
19								q	250	240	220	200	180	240	270	s	e							
20								240	200	200	270	240	220	280	b	b	e	190						
21								b	b	b	b	b	250	240	250	240	250	b						
22								a	250	240	b	230	230	250	220	240	240	b						
23									q	200	q	200	230	230	q									
24								a	200	b	250	220	230	240	q									
25								q	240	220	210	200	200	240	a	b	b							
26								a	q	230	220	240	220	210	240	240	220	q						
27								e	b	s	[200]	220	220	250	240	q								
28								q	[130]	210	220	240	200	220	220	q								
29								q	250	240	230	230	240	240	q									
30										q	210	220	240	200	220	200								
31									q	[220]	240	230	230	q										
Median								*	220	220	210	220	220	220	225	230	225	*						
No.									17	23	26	27	29	29	26	23	14							

HOURLY VALUES OF  $f_oE$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0$  Mc/s in 1m 55s  $157.5^\circ E$  Mean Time

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	[1.9]	2.1	2.3	2.5	2.5	2.5	2.5	2.1	2.0	b						
2									1.9	2.1	2.1	2.7	2.4	2.4	2.3	2.1	1.5							
3								1.4	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.0	1.5							
4								a	1.8	2.0	2.0	2.0	2.5	2.6	2.4	2.0	1.7	b						
5								a	1.8	2.1	b	b	b	2.5	2.3	2.0	a	a						
6									a	2.0	2.1	2.4	2.5	2.1	2.0	2.0	1.7							
7								b	1.6	2.0	2.1	2.5	2.5	2.7	2.1	2.0	1.5	b						
8								b	1.9	2.1	2.1	2.5	2.7	2.5	2.1	2.1	1.5	b						
9								b	b	2.0	2.1	2.6	2.5	b	[2.1]	b	b	b						
10								a	b	2.1	2.3	2.5	2.5	2.1	2.1	1.8	1.5	b						
11								b	b	2.0	2.1	2.1	2.4	2.4	c	2.1	1.7	a						
12								b	c	1.9	2.1	b	b	b	2.1	2.5	b	b						
13								b	1.6	1.9	2.1	2.1	2.4	2.5	2.1	1.8	1.5	b						
14								b	1.6	2.1	2.1	2.4	2.5	2.5	2.0	1.8	a	a						
15								b	1.6	1.4	2.1	2.1	2.5	2.1	2.1	[2.0]	b	b						
16									1.5	2.2	2.5	b	2.5	2.3	c	2.1								
17								b	a	2.1	2.3	2.5	2.6	c	c	c	c	c						
18								a	1.7	1.9	(2.1)	2.5	2.5	2.2	2.1	1.9	a	a						
19								b	(1.8)	1.9	1.8	1.7	2.3	1.8	2.0	2.1	a	c						
20								1.6	1.8	2.1	2.6	2.5	2.5	(2.5)	b	(2.5)	c	2.1						
21								b	b	b	b	b	2.5	2.5	2.7	1.9	2.1	b						
22								b	1.9	2.0	2.0	2.4	2.6	2.4	2.0	2.0	1.5	b						
23								b	1.7	2.0	2.0	2.5	2.3	2.1	2.0	1.9	a	b						
24								b	1.7	2.0	2.5	2.1	[2.1]	2.5	1.7	1.5	b	b						
25								a	1.7	1.7	2.0	2.3	2.5	2.4	2.3	1.7	b	b						
26								a	[1.5]	1.8	2.5	2.5	2.5	2.1	2.0	1.9	1.5	b						
27								c	c	1.7	a	2.1	2.5	2.1	[1.5]	1.5	b	b						
28								a	a	1.7	2.0	2.1	2.1	2.1	1.9	1.8	b	b						
29								b	[1.9]	2.0	2.0	2.1	2.1	2.0	2.0	1.7	2.0	a						
30								b	b	1.8	2.1	2.1	2.0	2.1	2.1	1.7	1.5	b						
31								a	a	1.9	2.0	2.1	2.0	1.8	1.5	1.7	b	b						
Median								*	1.8	2.0	2.1	2.4	2.5	2.4	2.1	2.0	1.5	*						
No.									20	30	28	27	29	28	27	29	15							

24a

HOURLY VALUES OF  $h^* E$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0$  Mc/s in 1m 55s  $157.5^\circ E$  Mean Time

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	[100]	100	100	100	110	100	100	100	100	b						
2									100	100	100	100	100	100	100	100	150							
3								160	110	100	100	100	100	100	100	120	150							
4								a	100	100	100	100	100	100	100	100	130	b						
5								a	110	100	b	b	b	100	100	100	a	a						
6									a	110	110	100	100	100	100	100	150							
7								b	100	100	100	100	100	100	100	120	(110)	b						
8								b		110	110	100	100	100	[110]	100	[100]	b						
9								b	b	100	100	[150]	100	b	130	(100)	b	b						
10								a	b	100	100	100	100	100	100	100	100	b						
11								b	b	(100)	100	100	100	100	e	100	120	a						
12								b	c	100	100	b	b	b	c	e	b	b						
13								b	100	100	100	100	100	100	100	100	100	b						
14								b	90	100	100	75	75	100	100	100	a	a						
15								b	120	110	110	100	100	100	100	100	b	b						
16									[100]	100	100	b	100	90	c	100								
17								b	c	100	100	100	100	e	e	e	e	e						
18								a		120	100	100	100	100	100	100	a	a						
19								b	(100)	(130)	e	100	100	e	100	100	a	a						
20								120	100	100	100	100	100	100	b	b	e	100						
21								b	b	b	b	b	100	(100)	(100)	100	100	b						
22								b	120	100	100	100	100	100	(120)	120	100	b						
23								b	100	100	100	100	100	80	90	100	a	b						
24								b	90	110	100	110	100	100	100	100	b	b						
25								a	100	100	100	100	100	100	100	100	b	b						
26								a	120	100	100	100	100	100	100	100	100	b						
27								c	c	100	a	a	[100]	100	100	130	b	b						
28								a	a	110	100	100	110	100	100	100	b	b						
29								b	[100]	100	100	100	100	100	100	130	(120)	a						
30								b	b	100	100	100	100	100	100	100	100	b						
31								a	a	100	100	100	100	100	100	100	b	b						
Median								*	100	100	100	100	100	100	100	100	100	*						
No.									18	30	27	26	29	27	26	28	14							

24b

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND.

Sweep:  $1.0 = 13.0 \text{ Mo/s in } 1 \text{ m } 55\text{s}$

157.5°E Mean Time

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	6.0	4.5	2.1	1.6	a	1.8	a	3.0	3.6	g	g	g	g	g	g	2.5	2.1	2.2	2.2	e	e	4.2	8.0	4.0
2	3.0	e	e	e	4.0	e	e	1.9	g	2.2	2.5	2.7	2.7	3.0	2.5	g	g	3.2	e	e	4.2	3.7	2.7	5.2
3	4.8	2.2	1.5	e	1.8	4.2	1.7	3.2	2.2	2.5	3.8	3.0	2.5	2.5	2.4	g	1.7	e	e	e	4.0	5.0	5.3	6.5
4	5.5	5.0	5.2	3.8	e	e	3.6	3.2	2.0	g	g	g	g	g	g	2.1	2.0	g	3.0	5.7	6.2	5.7	8.0	5.7
5	4.7	3.0	3.9	2.4	e	2.3	5.2	3.2	g	g	g	g	g	3.1	2.7	2.2	2.1	2.4	2.2	e	2.2	2.2	6.5	5.0
6	3.2	2.7	3.2	3.0	4.2	4.0	3.2	2.2	4.2	2.3	2.4	3.0	2.5	3.0	2.4	2.1	g	g	e	e	2.6	e	e	4.2
7	1.8	e	e	2.0	e	4.0	e	g	2.1	2.2	2.2	2.5	g	g	3.6	g	2.2	1.8	1.7	e	e	e	e	e
8	3.2	5.2	3.7	1.7	2.8	2.0	e	g	2.2	g	g	g	g	g	g	g	g	g	e	e	2.8	3.3	5.2	5.0
9	4.2	4.7	5.2	3.8	2.4	e	e	g	g	2.2	g	g	g	g	g	3.3	5.2	3.6	e	3.5	4.2	5.5	6.7	5.1
10	4.2	4.2	2.6	3.5	2.1	e	3.8	3.0	g	g	2.5	2.6	g	2.4	2.3	g	1.6	e	[3.4]	e	3.7	4.2	2.3	2.2
11	3.3	3.5	3.1	4.0	2.3	3.0	4.0	2.3	2.1	2.3	2.5	2.5	g	e	2.9	g	3.3	e	4.0	4.5	4.5	4.5	4.2	4.2
12	4.2	4.0	4.5	3.0	e	e	e	e	2.1	2.4	b	b	b	b	g	g	2.0	2.1	3.0	e	3.3	e	4.0	4.5
13	5.5	4.0	3.1	4.0	2.2	e	2.1	2.3	2.3	2.6	g	2.5	g	g	g	2.5	2.2	2.1	2.2	5.5	3.3	2.5	3.3	3.2
14	4.2	3.5	2.1	2.8	e	e	2.4	2.4	2.1	g	3.6	3.7	g	g	g	g	2.5	2.3	3.6	3.4	4.2	3.7	4.0	1.6
15	3.8	4.0	3.2	4.0	3.5	3.8	3.2	3.0	1.8	2.2	2.5	2.8	4.0	3.1	g	2.2	2.7	2.0	e	e	e	3.1	e	e
16	3.6	3.4	4.3	4.1	1.7	e	e	g	2.0	2.6	g	g	2.7	3.1	g	g	g	g	e	e	2.4	3.5	3.3	4.8
17	4.2	[4.0]	e	3.9	[3.2]	e	e	b	e	3.3	3.0	3.0	2.8	e	e	e	e	e	e	e	3.4	3.2	e	e
18	e	2.7	3.1	2.2	4.2	3.1	e	2.2	1.8	2.1	2.4	2.5	g	2.4	g	g	2.3	1.7	2.6	4.2	e	e	4.2	4.3
19	e	e	e	2.7	3.0	e	2.0	2.2	(2.2)	2.2	2.2	g	g	g	g	2.2	r	e	4.2	e	4.7	2.4	4.2	4.1
20	4.0	2.2	e	2.1	1.9	2.2	2.1	2.1	2.1	2.5	2.7	3.6	2.5	2.6	g	2.8	e	2.0	2.4	2.3	2.5	2.2	5.5	2.4
21	5.0	2.2	2.2	2.2	2.1	e	e	2.0	e	e	e	e	2.7	2.6	2.7	3.6	g	e	e	4.4	5.5	e	4.0	2.6
22	1.9	2.2	4.1	3.0	2.3	2.1	e	2.2	2.2	g	g	3.1	3.5	2.4	2.2	2.0	2.0	2.0	e	3.0	2.0	1.8	2.3	4.0
23	4.7	3.0	3.4	e	1.9	4.5	2.2	2.2	2.4	g	3.2	2.9	2.6	2.6	2.2	g	2.2	e	2.6	2.3	e	e	2.0	4.0
24	2.2	2.2	2.4	2.2	2.2	4.0	3.0	2.8	3.5	2.1	g	2.6	2.5	g	2.3	g	g	g	3.6	4.0	2.2	2.2	e	2.4
25	4.0	2.2	2.2	1.7	e	e	e	2.5	2.2	g	2.9	2.4	3.0	2.5	g	2.1	e	e	e	e	e	2.2	2.2	5.6
26	2.7	2.2	2.2	2.2	2.8	2.2	2.4	2.1	2.2	2.2	2.2	g	2.4	2.2	2.2	2.0	g	g	e	e	e	e	2.3	2.2
27	e	2.5	e	e	e	e	e	e	e	g	e	2.9	g	g	g	g	g	e	2.4	2.0	2.8	2.4	4.7	2.1
28	3.2	2.2	2.2	3.2	2.8	e	e	2.2	1.5	g	2.2	2.5	2.6	2.7	2.5	2.2	1.8	g	e	e	2.2	2.3	4.0	2.1
29	4.2	3.7	2.2	2.2	e	e	2.2	3.8	2.5	2.2	2.4	2.3	2.5	3.5	g	2.2	g	3.7	5.7	2.3	2.5	3.6	3.8	1.7
30	4.2	3.5	7.0	3.3	e	2.1	2.4	2.2	2.1	2.1	g	2.4	2.3	2.4	g	1.9	g	3.5	3.5	3.0	2.4	4.0	4.1	2.2
31	2.4	3.6	2.2	2.2	2.2	e	2.2	3.6	3.5	2.2	g	2.5	2.4	2.4	2.2	g	g	g	e	2.2	e	2.2	2.5	2.3
Median	4.0	3.2	2.8	2.8	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.5	2.5	2.4	**	2.0	1.6	1.7	1.7	2.2	2.5	3.0	3.9	4.0
No.	29	30	28	30	29	26	28	27	27	30	29	29	30	29	29	30	28	29	29	29	30	28	30	30

25a

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING MAY 1954 AT MACQUARIE ISLAND.

Sweep:  $1.0 = 13.0 \text{ Mo/s in } 1 \text{ m } 55\text{s}$

157.5°E Mean Time

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	100	110	150	a	100	a	180	100	g	g	g	g	g	g	120	100	100	100	e	e	150	100	100
2	100	e	e	e	100	e	e	120	g	140	150	130	120	130	160	g	g	150	e	e	120	140	160	110
3	110	100	120	e	100	120	120	130	120	130	100	110	100	130	100	g	180	e	e	e	100	110	100	150
4	100	220	150	100	e	e	110	100	100	g	g	g	g	g	g	110	130	g	150	140	100	130	120	120
5	100	100	130	130	e	110	100	100	g	g	g	g	g	100	100	110	100	130	e	200	120	110	100	100
6	110	110	100	100	100	100	100	130	110	110	110	110	150	120	120	130	g	g	e	e	100	e	e	100
7	100	e	e	100	e	120	e	g	100	100	100	110	g	g	110	g	100	100	100	e	e	e	e	e
8	120	100	100	100	100	140	e	g	130	g	g	g	g	g	g	g	g	g	e	e	200	130	100	70
9	90	100	100	100	100	e	e	g	g	100	g	g	g	g	g	120	100	150	e	150	130	120	100	100
10	100	100	100	100	100	e	110	120	g	g	100	100	g	170	100	g	150	e	100	e	130	100	150	120
11	110	100	100	100	100	100	90	90	100	100	100	100	100	g	e	140	g	100	e	e	100	100	100	100
12	100	100	100	120	e	e	e	g	e	100	100	b	b	b	g	g	100	90	170	e	90	e	100	90
13	100	100	100	100	100	e	100	100	100	100	g	100	g	g	g	100	100	100	100	110	110	100	120	110
14	90	80	80	100	e	e	140	80	90	g	100	80	g	g	g	g	100	100	150	90	150	150	100	100
15	100	75	90	75	100	120	120	100	120	110	150	110	100	110	g	110	100	100	e	e	e	e	e	e
16	100	110	120	100	100	e	e	g	100	100	g	130	100	g	g	g	g	e	e	e	170	150	150	120
17	100	100	e	100	100	e	e	b	e	110	110	110	110	e	e	e	e	e	e	e	100	100	e	e
18	e	100	100	90	110	120	e	150	130	130	130	120	g	120	g	g	150	140	[160]	120	e	e	100	100
19	e	e	e	100	100	e	100	110	100	100	100	g	g	g	g	100	e	e	140	e	150	120	110	100
20	100	100	e	100	80	100	100	100	100	120	170	150	110	80	g	110	e	b	150	80	130	100	100	80
21	90	90	90	80	100	e	e	100	e	e	e	75	100	70	100	g	e	e	e	100	100	e	110	100
22	110	100	100	100	100	120	e	120	120	g	g	110	110	130	100	100	120	e	150	110	100	150	120	120
23	100	100	100	e	80	100	100	(80)	100	g	150	150	100	80	100	g	100	e	170	180	e	e	150	130
24	100	100	120	120	120	110	110	110	100	110	g	130	130	g	100	g	g	g	110	130	130	130	e	140
25	100	100	100	100	e	e	e	100	110	g	110	110	120	110	g	100	e	e	e	e	e	120	100	100
26	100	120	120	120	100	100	100	100	100	110	100	g	140	100	100	100	g	g	e	e	e	e	150	140
27	e	130	e	e	e	e	e	e	e	e	e	g	130	g	g	g	g	e	140	180	150	140	100	100
28	100	100	120	120	120	e	e	100	120	g	110	140	130	120	100	120	110	g	e	e	[100]	130	160	160
29	100	100	100	150	e	e	100	100	100	110	110	110	160	140	g	180	g	180	160	100	140	120	120	150
30	100	100	100	100																				

HOURLY VALUES OF foF2 OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	[2.2]	a	3.3	2.2p	2.0p	e	a	2.9	3.7	4.1	4.5	4.5	4.5	4.1	4.1	3.6	2.4	3.3p	1.9	1.6f	e	2.1	[2.2]	
2	1.7f	a	a	a	a	a	a	a	2.8	3.5	3.9	4.0	4.2	4.8	4.6	4.8	4.7	3.2f	(2.1)	(1.5)	e	a	2.7f	2.6f	
3	2.5	2.0	b	1.7f	1.6f	1.5	1.5	[1.6]	2.9	3.6f	3.8f	4.5	4.5	4.8	4.2	4.0	4.0	3.5	2.0	[1.5]	[1.7]	a	2.9	[1.8]	
4	1.8	a	n	a	a	b	a	a	2.7	3.5	4.0	4.5	4.6	4.6	4.1	4.6	3.7	2.0	2.0	a	a	a	a	[2.1]	
5	a	[2.4]	2.3	1.7	b	b	b	b	2.2h	3.2	3.5	3.8	3.8	3.9	a	4.0	m	3.2p	2.2p	1.7	b	b	2.0	2.0	
6	b	b	b	b	b	b	a	b	2.7	3.5	4.1	4.4p	4.7	4.5	4.2	4.3p	4.2	3.5f	2.1	1.7	a	a	a	a	
7	2.0	2.0	2.0	b	a	a	a	b	2.7	3.8p	4.4p	5.0	4.8p	4.2	4.2	4.2f	3.8	3.1	2.5	1.8	b	b	b	b	
8	a	a	a	1.9f	1.9	1.8	b	b	2.5	3.5	3.8	4.0	4.7	3.9	3.2	b	b	1.8f	1.9	b	b	b	b	b	
9	a	a	a	b	b	b	b	b	2.8	3.6	4.0	4.5p	4.6	4.6	4.6	4.7	3.7p	3.5	c	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	4.2	4.0	4.2	3.8	[2.8]	b	c	c	c	c	c	c	(1.9)	
11	a	a	a	c	c	c	c	c	c	c	c	c	4.0	4.6	4.3p	4.2	4.0	3.7	3.0	2.4	[1.7]	b	b	b	
12	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	a	2.0	
13	a	a	2.0	1.8	a	a	2.2	3.5	3.9	4.0	4.2	4.8p	c	c	4.2p	4.6	4.6p	4.6	4.5	2.1	b	a	2.0	1.7	2.0
14	(2.1)	2.0	b	c	c	c	c	c	c	c	c	4.0	4.5	4.2	4.2	4.0	3.8	3.5	2.7p	2.1	a	a	a	a	
15	a	a	a	a	a	a	a	a	2.2f	3.4	3.7	4.1	4.5	4.2p	4.2	4.2	3.6	3.0	2.1	b	[2.0]	b	b	a	
16	b	a	a	b	b	b	a	a	[2.0]	3.0	4.0	4.3	4.3p	5.0	4.4	4.8	4.1	3.6	2.4p	2.0	a	2.5	2.0	a	
17	a	b	b	a	b	b	b	b	2.4	3.4	4.0	c	c	5.0p	4.6	3.3	2.6f	2.0	a	a	a	a	2.3	[1.9]	
18	(2.1)	[1.6]	a	1.6	b	b	b	b	2.5	3.7	4.2	4.2	4.7	4.3	4.1	4.3	3.5	2.8p	c	c	c	c	c	a	
19	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	4.2	4.2	3.8p	4.1p	2.2	1.7f	b	b	a	a
20	a	a	1.9	a	a	b	a	a	2.1	3.3	4.1p	4.0	4.1	4.5	4.5	4.0	4.0f	3.2	1.8	[1.8]	2.0	2.0	[1.8]	[1.8]	
21	2.0	(1.0)	[2.6]	b	b	a	b	a	2.0f	3.2	3.7	4.0	4.2p	a	4.4	4.2	4.1	2.0	2.0	2.0	2.0	a	a	a	
22	a	g	g	a	a	g	g	g	1.9	3.1p	3.5	4.0p	4.0	3.5	3.5	4.0	3.7	2.6p	1.6	a	b	b	b	(1.5)	
23	a	a	a	c	c	a	a	a	b	1.9	3.5	3.7	4.0	5.0p	4.5	a	4.2	3.5	4.0	2.0	b	b	b	a	
24	a	b	a	b	a	b	a	b	2.3	3.3	3.7	3.5	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	4.1	3.9	4.0p	1.9	b	a	b	b	a	
26	a	2.0	2.1	2.1	b	b	a	a	2.1	3.5	3.9	4.1	4.0	3.7	4.0	4.0	3.5	2.0f	1.7	b	2.0	2.2p	a	2.0	
27	2.2	b	a	a	b	a	a	a	2.5	3.5	3.6	4.0	4.4p	4.1	4.0	3.9	3.8	3.6	2.0	a	a	a	a	a	
28	a	a	b	b	b	a	a	a	2.1	3.2	3.5	4.0	4.0	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	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
31																									
Median	(2.0)	(2.0)	(2.0)	(1.8)	*	*	*	*	2.5	3.5	4.0	4.1	4.3	4.4	4.2	4.2	3.8	3.2	2.1	1.8	(1.8)	(2.0)	(2.0)	(2.0)	
No.	8	9	7	7					20	22	22	23	23	22	23	23	22	24	21	14	8	5	8	12	

HOURLY VALUES OF h'P2 OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	380p	a	290	270	e	a	a	250	250	240	260	270	250	260	250	220	250	230	300	300	e	340	330	
2	350	a	a	a	a	a	a	a	230	230	220	220	230	240	240	240	200	250	220	300	e	a	270	280	
3	270	320	b	290	250	[250]	280	[350]	230	220	240	270	250	240	240	230	240	250	240	300	350	a	200	470	
4	300	a	n	a	a	b	a	a	210	220	240	240	250	250	240	220	250	350	400	a	a	a	a	[280]	
5	a	e	350	300	b	b	b	b	230	250	220	230	280	270	a	250	m	240	[420]	300	b	b	420	420	
6	b	b	b	b	b	b	b	b	240	230	250	250	270	250	250	240	220	220	230	300	a	a	a	a	
7	350	(350)	340	b	a	a	b	b	200	220	220	260	240	250	250	240	200	230	240	[250]	b	b	b	b	
8	a	a	a	280	290	300	a	b	250	240	230	250	240	230	240	b	(270)	300	400	300	400	b	b	b	
9	a	a	a	b	b	b	b	b	230	230	230	230	240	230	230	230	180	200	c	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	260	250	260	250	250	b	c	c	c	c	c	c	a	
11	a	a	a	c	c	c	c	c	c	c	c	c	c	230	250	270	250	240	210	240	250	[350]	b	b	b
12	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	a	300	
13	a	a	[300]	[300]	a	a	250	230	250	250	270	260	c	250	250	250	250	240	[270]	b	a	[250]	[350]	300	
14	a	480	b	c	c	c	c	e	c	c	220	250	250	240	240	230	230	250	270	a	a	a	a	a	
15	a	a	a	a	a	a	a	a	230	210	220	250	250	240	250	230	200	230	250	b	220	b	b	a	
16	b	a	a	b	b	b	a	a	250	260	220	250	240	250	240	230	240	230	230	[350]	a	300	300	a	
17	a	b	b	a	b	b	b	b	200	250	250	c	c	250	220	230	250	250	(330)	s	a	a	200	250	
18	c	300	a	450	b	b	b	b	230	230	230	290	230	220	220	200	220	c	c	[260]	c	b	a	a	
19	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	250	240	220	230	230	[370]	400	350	c	350
20	a	a	[470]	a	a	b	a	a	260	250	250	220	260	250	250	240	220	220	270	[370]	400	350	c	350	
21	260	280	320	b	b	a	b	a	240	250	250	240	270	a	250	270	230	250	270	240	430	a	a	a	
22	a	g	g	a	a	g	g	g	250	250	270	270	280	270	250	240	230	230	280	a	b	b	b	[270]	
23	a	a	a	c	c	a	a	a	b	180	240	240	250	250	260	a	250	220	230	320	b	b	b	a	
24	a	b	a	b	a	b	a	b	220	230	230	250	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	250	230	200	270	b	a	b	b	a	
26	a	320	300	300	b	b	a	a	250	250	240	230	250	230	230	220	220	220	350	b	200	[180]	a	310	
27	370	b	a	a	b	a	a	a	220	220	230	240	250	260	250	250	200	250	250	a	a	a	a	a	
28	a	a	b	b	b	a	a	a	250	230	220	250	280	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	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
31																									
Median	(325)	(335)	(340)	(300)	*	*	*	*	230	230	235	240	250	250	250	240	225	230	250	300	(350)	(300)	(300)	(300)	
No.	6	8	7	7					20	22	22	23	23	22	23	23	22	24	22	14	8	5	7	11	

HOURLY VALUES OF h<sub>p</sub>F<sub>2</sub> OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	c	a	310	c	330	e	a	u	250	250	260	270	250	270	260	270	270	300	c	c	e	c	340
2	c	a	a	a	a	a	a	a	240	u	230	250	250	240	250	250	230	270	c	c	e	a	300	290
3	280	a	b	c	250	c	c	u	250	220	240	u	u	240	250	250	250	260	250	a	a	a	300	c
4	c	a	n	a	a	b	a	a	240	220	240	240	250	250	230	230	270	c	c	a	a	a	a	c
5	a	c	350	c	b	b	b	b	250	u	250	270	u	u	a	250	m	290	c	c	b	b	c	c
6	b	b	b	b	b	b	a	b	250	240	250	240	270	250	260	250	270	250	240	u	a	a	a	a
7	c	c	c	b	a	a	a	b	220	220	220	280	240	u	u	250	260	280	260	u	b	b	b	b
8	a	a	a	c	c	c	b	b	240	240	u	250	250	240	270	b	b	280	300	c	b	b	b	b
9	a	a	a	b	b	b	b	b	250	240	u	230	240	230	230	230	210	260	c	c	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	e	280	250	280	250	270	b	c	c	c	c	c	a
11	a	a	a	a	c	c	c	c	c	c	c	e	240	250	270	270	250	250	260	260	c	c	c	c
12	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	a	c
13	a	a	c	c	a	a	250	250	250	260	270	260	c	270	250	260	280	280	c	b	a	c	c	c
14	a	c	b	c	c	c	c	c	c	c	c	260	280	270	260	270	270	280	270	c	a	a	a	a
15	a	a	a	a	a	a	a	a	240	240	230	u	250	u	260	250	c	250	c	b	c	b	b	a
16	b	a	a	b	b	b	a	a	260	u	220	270	250	250	260	270	250	290	250	c	a	c	c	a
17	a	b	b	a	b	b	b	b	260	250	250	c	e	250	230	260	270	c	a	a	a	a	c	c
18	c	c	a	c	b	b	b	b	250	250	240	230	u	230	250	230	220	250	c	c	c	c	c	a
19	a	c	c	c	c	c	c	c	c	c	c	c	c	c	250	240	270	250	250	c	b	b	a	a
20	a	a	c	a	a	b	a	a	270	270	250	260	u	250	250	240	240	250	270	c	c	c	c	c
21	c	c	c	b	b	a	b	a	240	u	250	u	u	a	250	280	250	c	c	c	a	a	a	a
22	a	g	g	a	a	g	g	g	250	270	250	270	u	u	a	260	250	300	250	c	a	b	b	b
23	a	a	a	c	a	a	a	a	b	190	250	250	270	u	270	a	260	280	260	c	b	b	b	a
24	a	b	a	b	a	b	a	b	b	240	u	240	u	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	250	250	240	u	b	a	b	b	a
26	a	c	300	c	b	b	a	a	250	250	240	230	u	u	u	260	260	220	c	b	c	c	a	a
27	c	b	a	a	b	a	a	a	250	230	u	u	u	u	280	270	260	270	c	a	a	a	a	a
28	a	a	b	b	b	a	a	a	250	230	260	u	u	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	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
31																								
Median	*	*	*	*	*	*	*	*	250	240	250	255	250	250	250	250	260	260	260	*	*	*	*	*
No.									19	18	18	18	13	15	21	23	21	21	11					

27a.

HOURLY VALUES OF (M3000)F<sub>2</sub> OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	[2.7]	a	2.8	3.3	2.8	e	a	3.5	3.6	3.5	3.4	3.3	3.3	3.2	3.9	3.2	3.3	3.1	3.3	3.2	a	3.0	3.0
2	3.0	a	a	a	a	a	a	a	3.5	3.8	3.6	3.5	3.9	3.5	3.3	3.3	3.3	3.2	3.7	3.4	a	a	3.1	3.2
3	3.2	3.3	b	3.5	3.5	3.6	3.7	3.3	3.3	3.8	3.5	3.3	3.6	3.4	3.5	3.4	3.4	3.3	3.3	3.4	3.4	a	2.9	3.3
4	3.2	a	n	a	a	b	a	a	3.5	3.7	3.7	3.4	3.5	3.3	3.5	3.5	3.2	2.7	2.9	a	a	a	[3.5]	
5	a	2.9	3.0	3.3	b	b	b	b	3.1	3.4	3.5	3.3	3.3	3.4	a	3.5	m	3.1	2.6	3.3	b	b	2.7	2.9
6	b	b	b	b	b	b	a	b	3.5	3.6	3.5	3.7	3.3	3.4	3.3	3.5	3.2	3.3	3.5	3.2	a	a	a	a
7	3.3	(3.3)	3.2	b	a	a	a	b	3.5	3.7	3.7	3.0	3.5	3.5	3.3	3.8	3.4	3.3	3.4	3.5	b	b	b	b
8	a	a	a	3.4	3.5	3.1	b	b	3.5	3.4	3.4	3.2	3.4	3.5	3.6	b	b	3.5	3.3	2.9	b	b	b	b
9	a	a	a	b	b	b	b	b	3.2	3.6	3.6	3.6	3.6	3.5	3.5	3.7	3.3	3.1	c	c	c	c	c	c
10	c	c	c	c	c	c	c	c	c	c	c	3.1	3.5	3.2	3.5	3.3	b	c	c	c	c	c	(3.1)	
11	a	a	a	c	c	c	c	c	c	c	c	c	3.6	3.4	3.3	3.3	3.6	3.4	3.2	3.3	3.1	b	b	b
12	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	a	3.3
13	a	a	3.0	3.1	a	a	3.3	3.5	3.5	3.3	3.3	3.4	c	3.3	3.4	3.3	3.1	3.2	3.3	b	a	3.3	3.0	3.2
14	(2.9)	2.8	b	c	c	c	c	c	c	c	c	3.3	3.2	3.5	3.3	3.3	3.1	3.1	3.3	2.8	a	a	a	a
15	a	a	a	a	a	a	a	a	3.2	3.6	3.6	3.3	3.2	3.5	3.4	3.2	3.4	3.2	3.2	b	3.7	b	b	a
16	b	a	a	b	b	b	a	a	3.3	3.4	3.7	3.4	3.6	3.5	3.2	3.2	3.5	3.2	3.2	3.1	a	3.3	3.2	a
17	a	b	b	a	b	b	b	b	3.3	3.4	3.3	c	c	3.4	3.5	3.4	3.1	3.7	a	a	a	a	4.2	3.5
18	(3.3)	3.1	a	2.7	b	b	b	b	3.4	3.4	3.5	3.8	3.1	3.6	3.3	3.6	3.3	3.3	c	c	c	c	c	a
19	a	c	c	c	c	c	c	c	c	c	c	c	c	c	3.4	3.6	3.2	3.0	3.5	3.6	b	b	a	a
20	a	a	2.5	a	a	b	a	a	3.2	3.3	3.7	3.4	3.4	3.5	3.5	3.5	3.2	3.1	3.2	3.0	2.8	3.0	c	3.2
21	3.7	(3.8)	3.2	b	b	a	b	a	3.5	3.5	3.4	3.6	3.5	a	3.7	3.2	3.4	3.6	3.6	3.6	2.8	a	a	a
22	a	g	g	a	a	g	g	g	3.3	3.3	3.5	3.2	3.3	3.3	3.2	3.5	2.9	3.2	3.5	a	b	b	b	a
23	a	a	a	c	c	a	a	a	b	3.7	3.5	3.4	3.5	3.5	3.5	a	3.4	3.2	3.3	3.3	b	b	b	a
24	a	b	a	b	a	b	a	b	b	3.4	3.7	3.7	3.5	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	3.3	3.3	3.5	3.2	b	a	b	b	a
26	a	3.4	3.5	3.2	b	b	a	a	3.3	3.4	3.6	3.7	3.6	3.7	3.7	3.3	3.3	3.6	3.4	b	4.0	3.6	a	3.3
27	3.1	b	a	a	b	a	a	a	3.3	3.7	3.5	3.6	3.6	3.5	3.3	3.4	3.4	2.7	c	a	a	a	a	a
28	a	a	b	b	b	a	a	a	3.6	3.6	3.4	3.4	3.4	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	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
31																								
Median	(3.2)	(3.1)	(3.0)	(3.2)	*	*	*	*	3.4	3.6	3.5	3.4	3.5	3.5	3.4	3.4	3.3	3.2	3.3	3.3	(3.2)	*	(3.0)	3.2
No.	8	9	7	7					3.4	3.6	3.5	3.4	3.5	3.5	3.4	3.4	3.3	3.2	3.3	3.3	(3.2)	*	(3.0)	3.2

27b.



HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								a	[2.5]	3.0	3.0	3.2	3.2	3.3	3.2	q								
2												q	[3.0]	3.2	2.8	q								
3								q	[2.1]	q	[3.0]	3.4	3.2	3.2	2.5	2.5	q	2.1						
4									q	[2.9]	3.2	3.2	3.2	3.0	3.0	[2.1]	q							
5								b	q	[2.5]	2.8	2.5	[3.3]	2.8	a	m	q							
6							a	b	2.0	a	3.1	3.2	3.2	3.0	q	q								
7									q	3.2	3.2	3.2	3.1	q										
8									q	2.3	2.4	q	(2.5)	(2.5)	(2.5)	b	b							
9									q	[2.5]	3.2	3.2	3.2	3.2	3.2	3.2								
10										c	3.0	3.0	3.0	3.0	q									
11										c	c	c	c	c	c	3.0	q							
12								c	c	c	c	c	c	c	c	c	c							
13									2.9	2.9	3.2	3.2	c	[3.0]	b	[3.2]	q							
14												q	(3.0)	q										
15										q	2.9	2.8	3.1	2.8	3.0	q								
16									b	2.4	[2.7]	3.2	3.2	q										
17									b	2.5	2.7	c	c	[2.7]	[2.5]	[2.0]								
18										q	[3.0]	q	[3.2]	3.1	q									
19									c	c	c	c	c	c	q	[3.0]								
20									q	[2.5]	2.8	a	3.2	3.2	[3.0]	q								
21									b	[2.5]	2.5	[3.2]	3.2	a	3.0	3.0	q							
22									q	[2.5]	2.5	3.2	2.8	q	2.8	q								
23									q	[2.7]	2.5	q	3.7	3.3	a	q								
24									q	[2.5]	2.5	2.5	c	c	c									
25									c	c	c	c	c	c	c	q								
26									a	2.5	2.6	2.9	3.0	2.9	[3.0]	q								
27									q	2.5	3.0	3.2	3.1	q	[2.3]									
28									b	[2.5]	q	3.1	3.3	c	c	c								
29									c	c	c	c	c	c	c	c								
30									c	c	c	c	c	c	c	c								
31									c	c	c	c	c	c	c	c								
Median									*	2.5	2.8	3.2	3.2	3.1	3.0	3.0	*	*						
No.										11	20	18	22	20	14	10								

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								a	240	240	210	220	200	230	250	q								
2												q	[230]	240	200	q								
3								q	200	q	210	250	240	230	200	230	q	220						
4										q	220	220	220	220	230	220	230	q						
5								b	q	240	210	220	230	220	a	240	m	q						
6							a	b	230	a	240	240	260	220	q	q								
7									q	220	250	230	240	q										
8									q	200	200	q	240	200	230	b	b							
9									q	220	220	220	230	220	220	220								
10										c	250	220	250	220	q									
11										c	210	220	230	240	q									
12									c	c	c	c	c	c	c	c								
13									230	230	180	200	c	240	b	240	q							
14												q	240	q										
15										q	200	190	230	240	240	q								
16									b	250	220	230	230	q										
17									b	200	200	c	c	250	200	220	q							
18										q	220	q	200	220	q									
19									c	c	c	c	c	c	q	230	q							
20									q	240	240	a	180	180	250	q								
21									b	240	220	230	250	a	230	250	q							
22										q	[220]	220	230	230	q	240	q							
23										q	230	230	q	[240]	240	a	q							
24										q	220	220	190											
25									c	c	c	c	c	c	c	q								
26									q	230	230	200	180	230	q									
27									q	180	220	250	[210]	q	230									
28									b	220	q	220	230	c	c	c								
29									c	c	c	c	c	c	c	c								
30									c	c	c	c	c	c	c	c								
31									c	c	c	c	c	c	c	c								
Median									*	230	220	220	230	230	230	230	*	*						
No.										11	20	18	22	20	13	11								

HOURLY VALUES OF  $f_oE$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s 157.5°E Mean Time

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	1.8	2.0	2.4	2.5	2.5	2.7	2.7	2.7	2.4	2.0	b	b					
2							b	b	b	b	b	b	b	b	b	b	b	2.1	1.8					
3							b	2.0	2.1	2.5	b	b	b	2.7	2.5	2.5	2.0	1.6						
4							b	b	b	b	b	b	b	b	b	2.7	2.1	b						
5							b	2.0	2.4	2.6	2.6	2.8	2.8	2.7	2.6	2.5	b	1.7						
6								[1.7]	2.0	2.5	2.7	2.6	2.7	2.6	2.5	2.5	2.1	1.6						
7							b	b	b	b	b	2.7	2.6	2.5	2.6	b	b							
8								2.0	2.3	2.7	2.6	2.6	2.8	2.8	2.7	2.7	b	b						
9							b	2.0	2.3	2.7	2.6	2.8	b	b	b	2.5	b	b						
10							b	b	2.5	2.5	2.6	e	2.8	2.8	2.6	2.5	[2.2]	b						
11								1.8	2.3	2.7	2.7	b	2.8	2.2	2.2	2.2	2.1	(1.8)						
12							b	b	(2.3)	b	b	3.0	2.8	b	2.7	2.6	2.1	1.8						
13							b	(2.0)	2.5	2.6	2.7	2.9	2.7	b	2.7	2.5	2.1							
14							a	2.0	2.5	2.5	b	2.9	2.9	(3.0)	2.7	b	b	2.1	b					
15							b	b	2.4	b	b	b	b	[2.8]	2.7	2.5	2.5	2.0						
16							b	2.3	2.4	2.7	e	2.8	b	b	[2.7]	b	2.1							
17							b	b	2.5	2.7	2.7	2.7	b	b	b	2.6	2.0	b						
18							b	b	b	b	2.8	b	b	b	b	b	b	b						
19								b	2.5	3.0	2.2	2.8	2.7	2.8	2.7	2.6	2.4	(2.0)						
20							b	b	b	2.8	2.8	2.8	3.0	2.8	2.7	b	b	b						
21							b	b	b	b	b	b	b	2.8	(2.8)	b	b							
22							b	b	b	2.6	2.7	2.7	b	2.8	2.7	2.6	2.5	2.0						
23							e	e	e	e	e	e	e	e	2.8	2.6	2.7	2.1						
24							(1.8)	2.5	2.6	2.6	2.6	3.0	2.9	2.8	2.7	(2.7)	2.5	2.5	1.5					
25							b	2.1	2.3	2.8	(3.0)	b	b	(3.0)	3.2	(2.8)	2.5	b						
26								(2.5)	2.7	(3.1)	(3.0)	2.9	3.0	2.8	2.7	2.5	2.3	2.0						
27							(1.7)	2.2	2.5	2.8	2.7	3.0	2.9	2.9	2.7	2.5	2.1	e2.0						
28							b	b	(2.6)	2.8	2.8	3.0	3.0	b	b	(2.8)	3.0							
29							(1.8)	2.0	2.5	2.7	(2.9)	3.0	3.0	2.9	2.8	2.5	2.4	2.0						
30							b	b	b	b	b	3.0	3.0	2.9	2.8	2.6	(2.8)							
31																								
Median							*	2.0	2.4	2.7	2.7	2.8	2.8	2.8	2.7	2.5	2.2	2.0	*					
No.								15	21	21	19	20	18	20	24	23	21	15						

44a

HOURLY VALUES OF  $h' E$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s 157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							b	110	120	100	100	100	100	100	110	120	120	b	b					
2							b	b	b	b	b	b	b	b	(100)	b	b	150	120					
3							b	100	100	120	b	b	b	100	100	100	110	100						
4							b	b	b	b	b	b	b	b	b	110	110	b						
5							b	[110]	110	100	100	(100)	100	(100)	(100)	[120]	b	(100)						
6								(100)	110	100	100	100	100	(100)	(100)	120	100	(90)						
7							b	b	b	b	b	100	100	100	120	b	b							
8								100	100	100	110	120	100	120	120	100	b	b						
9							b	120	120	120	110	(100)	b	b	b	110	b	b						
10							b	b	110	110	110	110	110	110	120	110	100	b						
11								120	120	120	120	b	100	100	110	120	120	b						
12							b	b	b	b	b	120	110	b	120	120	130	e150						
13							b	b	120	120	120	110	120	(120)	130	120	130							
14							a	130	120	100	b	120	120	b	120	b	b	130	b					
15							b	b	110	b	b	b	b	b	110	[110]	110	e						
16							b	120	110	120	120	130	b	b	110	b	130							
17							b	b	110	110	110	110	b	b	b	130	120	b						
18							b	b	b	b	120	b	b	b	b	b	b	b						
19								b	120	120	120	110	100	100	110	110	110	b						
20							b	b	b	120	120	120	100	100	100	b	b	b						
21							b	b	b	b	b	b	b	130	b	b	b							
22							b	b	b	120	120	120	b	120	e	130								
23							e	e	e	e	e	e	e	e	(120)	120	120	130						
24							b	130	120	130	120	110	110	100	120	120	130	140	e					
25							b	110	120	110	b	b	b	b	140	b	190	b						
26								b	120	b	b	120	120	110	120	120	120	140						
27							(110)	120	120	120	110	110	100	100	100	110	120	130						
28							b	b	b	110	120	110	110	b	b	b	120							
29							b	130	120	120	b	120	110	120	110	120	130	140						
30							b	b	b	b	b	120	130	120	120	130	b							
31																								
Median							*	120	120	120	120	110	105	100	110	120	120	130	*					
No.								13	19	20	17	21	18	18	23	21	19	11						

44b

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1\text{m}55\text{s}$

$157.5^\circ\text{E}$  Mean Time

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								[2.5]	3.0	3.1	3.0	3.8	3.8	3.6	3.5	3.5	3.0	b	b					
2								b	b	b	b	b	b	b	3.5	b	b	[2.6]	q					
3								q	3.0	[3.3]	b	b	b	3.6	3.5	3.3	3.0	2.3	q					
4								b	b	b	b	b	b	b	3.6	3.2	3.0	q						
5								2.5	3.3	3.3	3.7	3.8	3.7	3.6	3.8	3.5	3.0	[2.1]	a					
6							q	2.5	3.2	3.4	3.5	3.8	3.8	3.4	[3.5]	3.5	3.2	2.1	q					
7							b	b	b	b	b	[3.7]	3.6	3.7	3.5	3.5	3.1	[2.5]						
8							a	2.9	3.1	3.5	3.5	3.7	3.8	3.8	3.5	3.5	(2.7)	[2.5]	[2.0]					
9							b	3.0	3.3	3.6	3.7	3.7	b	[3.8]	3.7	3.6	3.2	b						
10								q	3.3	3.6	3.6	3.7	3.7	1	3.6	3.5	q							
11							q	3.2	3.1	3.5	3.6	b	3.8	3.6	q	2.9	2.8	2.6	q					
12								b	3.1	b	[3.2]	4.0	3.9	3.3	3.4	[3.5]	3.3	2.5	q					
13							b	2.7	3.0	3.0	3.7	3.8	3.8	3.8	3.6	3.5	3.3	q						
14							a	2.4	3.5	[3.7]	3.7	3.8	3.8	3.9	3.5	a	a	q	q					
15								q	b	b	b	b	b	3.8	3.6	3.7	3.0	2.7	q					
16								q	3.5	3.7	3.8	3.8	b	b	3.8	b	3.0	a	a					
17								q	3.6	3.6	3.7	3.2	b	b	3.4	3.3	q							
18								bs	bs	3.8	b	b	b	b	b	3.8	b	q						
19								q	3.6	3.9	3.8	3.8	3.8	3.9	3.7	3.6	3.4	q						
20								q	4.0	3.8	3.8	3.9	3.9	3.8	b	b	q							
21								b	b	b	b	b	b	3.9	3.8	3.7	b	q						
22							b	b	3.7	3.7	3.8	3.8	3.8	3.8	3.8	3.7	3.2	2.5	b					
23								e	e	e	e	e	e	3.7	3.4	3.4	2.8	(2.2)						
24							[2.0]	q	3.2	(3.8)	3.8	4.0	3.8	4.0	3.8	3.7	3.3	q	2.3					
25								3.0	3.5	3.7	3.9	b	b	4.0	3.8	3.6	3.5	b						
26								q	3.5	3.7	3.8	3.9	3.9	3.8	3.8	3.6	3.4	(3.0)	q					
27								2.4	2.7	3.5	3.7	3.7	3.9	4.0	3.8	3.6	3.3	2.9	q					
28								b	b	(3.6)	3.8	3.8	3.8	3.9	b	b	3.8	3.5	q					
29								2.4	(2.5)	3.5	3.7	3.8	3.9	3.8	3.8	3.7	3.7	3.6	2.9	q				
30								b	b	b	b	(4.0)	4.0	3.9	4.0	3.9	3.7	3.5	q					
31																								
Median							*	2.7	3.3	3.7	3.7	3.8	3.8	3.8	3.7	3.5	3.3	2.6	*					
No.								11	20	21	23	21	20	22	26	25	25	14						

43a

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep:  $1.0 - 13.0 \text{ Mc/s in } 1\text{m}55\text{s}$

$157.5^\circ\text{E}$  Mean Time

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								240	240	210	200	230	220	230	250	230	230	b	b					
2								b	b	b	b	b	b	b	240	b	b	e	q					
3								q	240	200	b	b	b	230	230	260	240	240	q					
4								b	b	b	b	b	b	b	230	230	250	q						
5								250	240	250	230	250	240	230	220	230	e	290	a					
6							q	240	270	230	230	230	240	230	230	230	240	230	q					
7							b	b	b	b	b	240	240	220	220	b	250	250						
8							a	240	240	230	180	250	240	220	210	240	e	230	240					
9							b	260	230	210	220	230	b	220	220	230	[240]	b						
10								q	250	220	220	200	210	(230)	220	220	q							
11							q	230	220	230	220	b	200	230	q	230	[220]	240	q					
12								b	250	b	200	220	200	220	220	230	250	250	q					
13							b	220	240	220	220	200	200	240	220	220	220	q						
14							a	220	250	190	200	240	220	[200]	230	a	a	q	q					
15								q	b	b	b	b	b	220	230	240	260	250	q					
16								q	240	230	[220]	220	b	b	230	b	230	a	a					
17								q	230	220	220	220	220	b	b	230	220	q						
18								bs	bs	230	b	b	b	b	b	b	240	b	q					
19								q	240	240	200	200	200	210	190	230	240	q						
20								q	250	230	240	220	210	200	b	b	q							
21								b	b	b	b	b	b	230	230	240	b	q						
22							b	b	220	250	230	230	210	220	230	240	230	210	b					
23								e	e	e	e	e	e	e	230	200	270	250	(240)					
24								250	q	230	190	180	240	200	200	190	200	250	q	230				
25								230	200	220	210	b	b	200	210	220	250	b						
26								q	240	(270)	230	240	250	220	200	230	230	240	q					
27								240	230	230	200	230	200	210	210	220	220	230	q					
28								b	b	230	220	200	220	210	b	b	240	(320)	q					
29								250	200	270	220	240	220	200	220	200	230	230	240	q				
30								b	b	b	b	a	200	220	200	200	250	280	q					
31																								
Median							*	230	240	220	220	230	215	220	220	230	240	240	*					
No.								11	20	21	22	21	20	23	26	24	23	13						

43b

HOURLY VALUES OF  $f_{hp}F_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	230	a	a	a	a	a	a	270	u	u	u	u	u	u	u	u	300	b	b	a	a	a	a	a
2	b	a	b	b	a	a	b	b	b	b	b	b	b	b	u	b	370	u	370	a	a	a	a	a
3	a	a	a	a	a	a	a	250	u	u	b	b	b	u	u	u	320	270	350	[380]	a	b	b	b
4	a	b	b	b	a	a	b	b	270	b	b	b	b	u	u	u	380	a	260	300	c	a	a	
5	a	a	b	b	a	c	310	u	u	u	u	u	u	u	u	u	320	u	a	350	330	b	a	b
6	a	a	a	a	b	b	380	270	u	u	u	u	u	u	u	310	280	270	280	320	320	a	c	c
7	a	a	a	a	a	b	b	b	b	b	c	u	u	u	u	u	u	300	450	280	350	380	a	a
8	a	a	a	a	b	b	a	u	u	u	u	u	u	u	u	u	290	250	290	300	300	310	a	a
9	a	a	a	b	b	a	b	u	u	u	u	u	b	u	u	u	280	b	a	a	370	330	a	a
10	a	a	b	a	a	a	a	270	u	u	u	b	b	b	u	u	260	b	350	a	a	a	a	[350]
11	a	b	a	a	b	b	310	g	c	u	u	b	u	u	u	u	310	300	a	310	280	a	a	b
12	a	a	a	a	b	b	b	h	u	b	u	g	g	u	u	u	u	310	300	320	a	a	a	b
13	a	a	b	b	b	b	280	280	240	u	u	g	g	u	u	u	u	290	300	300	330	330	a	a
14	a	340	c	c	a	b	290	260	u	u	u	u	u	u	a	a	290	370	a	a	a	a	a	b
15	b	b	a	a	b	a	290	290	250	b	b	b	b	u	g	u	u	300	310	450	a	a	b	a
16	a	b	b	a	a	a	280	270	u	u	u	u	b	b	u	b	u	a	a	a	a	c	a	a
17	b	a	a	a	a	b	b	300	300	g	g	u	u	b	u	u	u	320	330	390	300	320	330	a
18	a	a	a	a	b	b	b	b	b	b	g	b	b	b	u	u	b	370	a	a	b	a	a	a
19	c	b	b	b	a	b	b	300	g	g	g	u	u	u	u	u	u	280	380	450	300	300	c	c
20	a	a	a	a	a	a	a	320	270	g	u	u	u	u	u	b	c	c	370	a	a	b	a	b
21	b	a	b	b	b	b	b	b	b	b	b	b	b	u	u	u	b	c	a	c	a	a	a	b
22	b	a	b	b	b	b	b	g	u	u	u	u	u	u	u	u	300	280	b	300	c	320	a	350
23	a	b	350	c	c	c	c	c	c	c	c	c	c	c	u	u	290	270	260	a	a	360	a	a
24	a	a	a	a	330	a	330	280	270	u	u	u	u	u	u	u	300	340	280	280	320	a	a	330
25	350	350	300	290	b	a	280	u	u	u	u	b	u	u	u	u	350	b	a	a	a	a	a	a
26	a	a	b	b	b	a	300	310	u	u	u	u	u	u	u	u	u	300	280	300	320	330	a	a
27	a	a	a	a	b	290	280	280	u	u	u	u	u	u	u	u	320	280	300	300	340	330	310	310
28	340	a	a	a	a	a	b	b	u	u	u	u	u	b	b	u	u	a	a	a	a	a	a	a
29	a	b	a	a	c	300	290	280	u	u	u	u	u	u	u	u	u	270	370	a	390	a	a	b
30	a	a	a	a	b	b	b	b	b	b	u	u	u	u	u	u	u	a	a	a	a	b	a	a
31																								
Median	*	*	*	*	*	*	290	280	(290)	(g)	*	*	*	*	*	*	300	290	320	305	325	330	*	*
No.							11	16	6	5							14	18	19	16	14	10		

42a

HOURLY VALUES OF  $(M3000)F_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	3.6	a	a	a	a	a	a	3.4	3.3	3.3	3.3	2.8	3.3	3.0	3.1	3.0	2.9	b	b	a	a	a	a	a
2	b	a	b	b	a	a	b	b	b	b	b	b	b	b	2.9	b	2.8	2.9	2.9	a	a	a	a	a
3	a	a	a	a	a	a	a	3.4	3.3	2.9	b	b	b	2.8	2.8	3.1	3.1	3.4	3.1	2.8	a	b	b	b
4	a	b	b	b	a	a	h	h	h	3.1	h	h	h	h	2.7	2.4	2.8	2.8	a	3.4	3.3	3.0	a	a
5	a	a	b	b	a	3.2	2.8	3.4	3.2	3.2	3.2	2.7	2.8	3.0	4.3	2.8	2.9	2.6	a	2.9	3.1	h	a	b
6	a	a	a	a	b	b	2.7	3.3	3.2	3.0	3.2	3.0	3.0	3.0	3.0	3.1	3.2	3.3	3.5	3.2	3.0	a	2.9	3.1
7	a	a	a	a	a	a	b	b	b	b	b	c	2.8	2.9	2.7	2.6	3.2	2.8	2.4	3.3	2.9	[2.7]	a	a
8	a	a	a	a	b	b	a	3.1	3.3	3.0	[2.8]	3.4	2.5	2.9	2.8	3.2	3.3	3.4	3.0	3.1	3.0	3.0	a	a
9	a	a	a	b	b	a	b	3.2	3.2	[3.0]	3.1	3.0	b	2.9	2.9	2.9	3.2	b	a	a	2.9	2.9	a	a
10	a	a	b	a	a	a	a	3.3	3.1	2.9	2.4	b	b	b	2.9	3.0	3.2	b	2.9	a	a	a	a	[3.9]
11	a	b	a	a	b	b	3.1	g	[2.7]	2.9	2.9	b	2.9	2.9	3.0	3.0	3.1	3.1	a	3.1	3.6	a	a	b
12	a	a	a	a	b	b	b	2.9	b	3.4	g	g	2.6	2.6	3.0	2.9	3.1	3.1	2.9	3.0	a	a	a	b
13	a	a	b	b	b	b	3.2	3.2	3.5	2.9	2.9	g	g	2.7	3.2	3.0	3.2	3.0	2.9	2.8	2.9	a	a	a
14	a	2.9	3.1	2.7	a	b	3.2	3.5	2.9	3.0	2.8	2.6	2.9	2.9	2.9	a	a	3.2	2.9	a	a	a	a	b
15	b	b	a	a	b	a	3.1	3.1	3.3	b	b	b	b	2.6	g	3.0	3.0	3.1	2.9	2.5	a	a	b	a
16	a	b	b	a	a	a	3.1	3.3	3.2	3.0	3.0	2.6	b	b	3.0	b	3.3	a	a	a	a	3.1	a	a
17	b	a	a	a	a	b	b	3.0	3.0	g	g	2.7	2.7	b	2.8	3.0	3.2	3.0	2.8	2.6	3.1	2.9	2.9	a
18	a	a	a	a	b	b	b	b	b	b	g	b	b	b	b	3.2	3.1	b	2.7	a	a	b	a	a
19	[3.1]	b	b	b	a	b	3.0	g	g	g	2.7	2.6	2.6	2.7	2.7	2.9	3.2	2.6	2.4	2.9	3.2	3.6	c	
20	a	a	a	a	a	a	b	2.8	3.1	g	2.9	2.9	2.7	2.9	2.7	b	3.0	3.1	2.7	a	a	h	a	h
21	b	a	b	b	b	b	b	b	b	b	b	b	3.1	2.9	2.9	b	3.2	a	2.8	a	a	a	b	
22	b	a	b	b	b	b	b	g	2.9	2.7	3.1	2.9	3.0	3.1	3.1	3.1	3.1	3.1	b	3.1	3.1	3.0	a	2.9
23	a	b	3.0	c	c	c	c	c	c	c	c	c	c	c	3.4	3.2	3.2	3.2	3.2	a	a	2.8	a	a
24	a	a	a	2.9	a	2.9	3.3	3.3	2.9	3.0	3.3	3.2	3.0	3.1	3.1	3.1	3.0	3.2	3.0	3.0	a	a	a	2.9
25	3.2	2.9	3.0	3.0	b	a	3.0	3.3	2.9	2.4	3.0	b	b	3.0	2.9	3.1	2.8	b	a	a	a	a	a	a
26	a	a	b	b	b	a	3.3	3.0	3.1	2.6	2.7	2.6	2.6	2.8	2.8	2.8	2.9	3.0	3.3	3.0	2.8	2.8	a	a
27	a	a	a	a	b	3.1	3.2	3.1	3.1	2.6	2.7	2.8	2.8	2.9	3.0	4.1	3.0	3.2	3.1	3.1	2.9	3.0	2.8	3.1
28	2.7	a	a	a	a	a	b	b	2.8	2.7	2.7	2.7	2.6	b	b	2.9	2.7	a	a	a	a	a	a	a
29	a	b	a	a	3.1	3.1	3.2	3.2	3.0	2.7	2.4	2.7	2.6	2.7	2.7	3.1	3.0	3.4	2.7	a	2.8	a	a	b
30	a	a	a	a	b	b	b	b	b	b	2.9	3.0	3.1	2.8	3.1	2.8	2.6	a	a	a	a	b	a	a
31																								
Median	*	*	*	*	*	*	3.1	3.2	3.1	2.9	2.9	2.8	2.8	2.9	2.9	3.0	3.0	3.1	2.9	3.0	3.0	3.0	*	*
No.							11	20	23	22	23	19	19	22	28	26	28	22	19	17	15	12		5

42b

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	3.2	a	a	a	a	a	a	3.1	3.6	3.7	4.0	4.1	4.1	4.0	4.3	4.3	4.3	b	b	a	a	a	a	a		
2	b	a	b	b	a	a	b	b	b	b	b	b	b	3.8	3.8	4.0	3.9	4.0	1.8	1.8	a	a	a	a		
3	a	a	a	a	a	a	a	3.0	3.4	3.5	b	b	b	3.8	3.8	4.0	3.9	4.0	1.8	1.8	a	b	b	b		
4	a	b	b	b	a	a	b	b	b	3.8	b	b	b	b	4.0	3.6	3.5	2.8	a	2.0f	1.8	1.6	a	a		
5	a	a	b	b	a	1.6	2.0	3.1	3.5	3.6	3.8	4.0	4.0	4.2	4.3	4.5f	4.2	3.0	a	2.9	1.9	b	a	b		
6	a	a	a	a	b	b	1.9	3.1	3.5	3.9	4.0	4.1	4.5	4.5	4.5	4.5	4.8	2.7f	1.8f	2.0	2.0	a	[2.5]	[1.9]		
7	a	a	a	a	a	a	b	b	b	b	b	b	b	b	4.0	4.2	4.2	4.4	4.0	3.9	3.0	2.0f	2.0	[2.1]	a	a
8	a	a	a	a	b	b	a	3.0	3.5	3.8	[4.0]	3.8	4.0	4.2	4.0	4.0	4.1	3.8	3.6	2.9	2.2	1.8	a	a	a	
9	a	a	a	b	b	a	b	3.2	3.9	[3.9]	4.1	4.4	b	4.0	4.2	4.6	4.6	b	a	a	2.3	2.3f	a	a	a	
10	a	a	b	a	a	a	a	3.0	3.5	3.9	4.0	b	b	b	4.0	4.1	3.4	b	3.2	a	a	a	a	[2.0]	a	
11	a	b	a	a	b	b	2.2	g	3.6	4.0	4.0	b	4.5	4.0	4.3	3.3	3.8	4.1	a	3.0	2.0	a	a	b	a	
12	a	a	a	a	b	b	b	b	3.4	b	3.6	g	g	3.4	3.6	3.8	4.1	4.0	3.6	3.0	a	a	a	b	a	
13	a	a	b	b	b	b	b	3.6	3.8	3.9	4.0	4.0	g	g	3.8	4.1	3.9	3.8	3.6	3.4	2.5f	2.2	a	a	a	
14	a	2.0	1.8	2.0	a	b	2.7	3.5	4.0	4.1	4.4	4.5	4.8	5.1	4.0	a	a	3.0	2.7	a	a	a	a	b	a	
15	b	b	a	a	b	a	2.4	3.1	3.6	b	b	b	b	3.9	g	4.1	3.8	3.6	3.2	2.8	a	a	b	a	a	
16	a	b	b	a	a	a	2.6	3.5	3.9	4.2	4.4	4.4	b	b	4.9	b	3.8	a	a	a	a	2.0	a	a	a	
17	b	a	a	a	a	b	b	3.3	3.8	g	g	4.1	3.7	b	4.1	4.3	3.7	4.2	5.0	3.4	3.4	2.7	2.1	a	a	
18	a	a	a	a	b	b	b	b	b	b	g	b	b	b	b	4.3	4.0	b	3.3	a	a	b	a	a	a	
19	[2.0]	b	b	b	a	b	b	3.4	g	g	g	4.0	4.1	4.0	3.9	3.8	3.9	4.2	3.4	2.9	2.3	2.0	2.0	c	a	
20	a	a	a	a	a	a	b	4.0	4.0	g	4.0	4.1	4.4	4.4	4.6	b	4.3	4.3	3.8	a	a	b	a	b	a	
21	b	a	b	b	b	b	b	b	b	b	b	b	b	4.7	5.0	5.0	b	4.1	a	2.3	a	a	a	b	a	
22	b	a	b	b	b	b	b	b	g	4.0	4.0	5.0	4.5	4.7	4.7	4.8	4.6	4.2	b	2.0	3.1f	2.9f	a	3.3	a	
23	a	b	2.8	c	c	c	c	c	c	c	c	c	c	c	4.4	4.7	4.8	4.6	4.9	a	(3.0)	2.7f	a	a	a	
24	a	a	a	2.0	a	1.6	2.9	3.5	3.9	4.3	4.3	4.4	4.4	4.7	4.8	4.7	4.8	4.9	4.6	4.5f	3.0f	a	a	3.0f	a	
25	2.5f	2.6	2.3f	2.3f	b	a	2.9	3.5	3.8	4.1	4.1f	b	b	4.7	4.8	4.7	4.8	4.9	4.6	a	a	a	a	a	a	
26	a	a	b	b	b	a	3.1	3.7	3.9	4.0	4.2	4.1	4.4	4.5	4.5	4.6	4.5	4.4	4.0f	3.2f	2.7f	2.3	a	a	a	
27	a	a	a	a	b	1.9	3.0	3.7	3.7	3.9	4.3	4.3	4.2	5.0	4.7	4.5	4.5	4.2	4.3	4.0	3.3	2.3	2.7f	2.0f	a	
28	2.6f	a	a	a	a	a	b	b	3.9	4.3	4.3	4.5	4.5	b	b	4.7	4.3f	a	a	a	a	a	a	a	a	
29	a	b	a	(2.0)	1.4	1.9	3.0	3.5	3.8	4.0	4.0	4.3	4.1	4.3	4.7	4.4	4.0f	4.1f	3.4f	a	2.8	a	a	b	a	
30	a	a	a	a	b	b	b	b	b	b	4.8	4.5	5.2	4.6	5.3	4.8	4.6	a	a	a	a	b	a	a	a	
31																										
Median	*	*	*	*	*	*	2.7	3.4	3.7	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.1	4.0	3.4	2.9	2.4	2.2	*	(2.0)	41a	
No.							11	20	23	22	23	19	19	22	28	26	28	22	19	17	16	12			5	

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $h^pF_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	200	a	a	a	a	a	a	270	270	250	250	420	410	370	320	340	290	b	b	a	a	a	a	a	
2	b	a	b	b	a	a	b	b	b	b	b	b	b	b	420	b	370	370	370	a	a	a	a	a	a
3	a	a	a	a	a	a	a	250	280	[400]	b	b	b	420	430	310	320	270	350	[350]	a	b	b	b	b
4	a	b	b	b	a	a	b	b	b	270	b	b	b	b	440	520	380	380	a	250	300	[350]	a	a	a
5	a	a	b	b	a	330	280	260	330	300	380	500	450	380	390	340	320	370	a	350	320	b	a	b	a
6	a	a	a	a	b	b	350	270	320	320	310	380	370	360	330	310	270	270	280	320	[300]	a	420	370	a
7	a	a	a	a	a	a	b	b	b	b	b	b	b	430	350	400	370	280	280	420	280	350	360	a	a
8	a	a	a	a	b	b	a	350	300	400	420	420	520	390	400	330	290	250	270	250	280	290	a	a	a
9	a	a	a	b	b	a	b	350	280	370	380	380	b	[450]	380	350	280	b	a	a	370	320	a	a	a
10	a	a	b	a	a	a	a	270	370	380	590	b	b	b	410	360	250	b	340	a	a	a	a	[350]	a
11	a	b	a	a	b	b	300	g	g	380	400	b	370	400	370	390	300	270	a	300	280	a	a	b	a
12	a	a	a	a	b	b	b	b	380	b	270	g	g	530	550	380	350	290	250	270	a	a	a	b	a
13	a	a	b	b	b	b	280	270	230	400	440	g	g	480	330	320	250	250	300	300	a	a	a	a	a
14	a	320	270	520	a	b	250	250	380	350	420	450	360	330	400	a	a	270	370	a	a	a	a	b	a
15	b	b	a	a	b	a	280	280	250	b	b	b	b	520	g	350	340	300	270	450	a	a	b	a	a
16	a	b	b	a	a	a	280	260	320	370	340	410	b	b	340	b	280	a	a	a	a	a	a	a	a
17	b	a	a	a	a	b	b	240	250	g	g	450	420	b	370	330	300	290	250	300	300	300	320	a	a
18	a	a	a	a	b	b	b	b	b	b	g	g	b	b	b	300	330	b	370	a	a	b	a	a	a
19	[350]	b	b	b	a	b	b	280	g	g	g	500	520	520	470	470	360	260	350	370	320	300	280	270	a
20	a	a	a	a	a	a	b	290	250	g	440	420	430	400	390	b	[350]	350	370	a	a	b	a	b	a
21	b	a	b	b	b	b	b	b	b	b	b	b	b	360	370	350	b	320	a	350	a	a	a	b	a
22	b	a	b	b	b	b	b	g	420	450	320	370	370	340	320	300	270	b	300	260	300	a	350	a	
23	a	b	350	c	c	c	c	c	c	c	c	c	c	c	320	280	290	260	250	240	270	a	a	310f	a
24	a	a	a	300	a	330	270	250	270	(370)	350	320	350	330	320	320	290	260	250	240	270	a	a	a	a
25	350	320	300	290	b	a	250	260	400	500	(420)	b	b	350	360	330	350	b	a	a	a	a	a	a	a
26	a	a	b	b	b	a	300	270	340	470	470	500	470	380	380	370	330	280	240	280	300	320	a	a	a
27	a	a	a	a	b	270	270	250	400	500	390	400	420	350	330	330	320	270	260	250	280	280	300	310	a
28	300	a	a	a	a	a	b	b	410	330	450	410	470	b	b	330	390	a	a	a	a	a	a	a	a
29	a	b	a	a	330	290	300	260	390	470	550	450	520	450	380	370	330	270	370	a	390	a	a	b	a
30	a	a	a	a	b	b	b	b	b	b	370	360	320	390	320	370	400	a	a	a	a	b	a	a	a
31																									
Median	*	*	*	*	*	*	280	270	325	380	420	420	430	385	380	340	320	270	280	300	300	300	*	(330)	41b
No.							11	20	22	22	23	19	19	22	28	26	28	22	19	17	15	11			6

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	3.4	3.5	e	e	e	2.7	2.7	g	g	2.5	2.7	2.5	b	2.4	g	g	e	e	e	e	e	4.5	4.9	2.4	6.5
2	5.7	7.0	4.8	2.5	3.5	2.8	e	e	g	g	g	2.6	3.0	c	c	c	c	e	e	e	e	e	3.7	3.6	6.5
3	4.0	3.3	3.3	2.2	3.2	4.0	2.2	2.3	2.2	2.2	2.7	g	g	g	2.2	2.2	e	e	e	e	c	2.8	4.8	4.0	
4	4.5	4.7	5.8	6.5	b	2.5	3.0	3.5	2.0	g	g	g	g	2.4	2.3	g	g	3.8	2.4	2.3	e	e	3.8	4.0	
5	6.0	4.8	4.2	4.0	3.3	3.2	3.2	3.2f	3.2	g	2.2	3.0	g	g	2.3	g	g	g	3.0	3.0	3.0	c	3.8	4.2	
6	4.5	7.5	3.1	2.6	e	e	e	2.6	2.8	g	g	g	g	2.8	c	2.1	e	e	3.4	7.0	7.0	5.0	5.7	7.7	
7	5.5	5.6	3.8	2.7	e	m	m	m	m	m	m	m	2.6	g	2.7	3.0	2.3	1.4	e	m	3.2	m	m	m	
8	4.7	4.7	5.0	5.5	3.2	3.3	e	e	3.5	2.7	2.7	2.5	2.8	2.9	g	2.6	2.1	e	e	3.3	3.5	3.9	3.8	7.0	
9	7.0	4.7	4.4	2.8	4.2	2.5	e	e	2.0	2.4	3.0	2.9	g	g	2.6	g	2.2	3.7	e	e	e	e	e	e	
10	e	3.8	e	3.9	2.2	e	e	g	g	2.2	g	2.8	3.0	g	2.6	3.1	2.4	g	1.5	2.5	2.7	e	e	5.7	
11	4.8	4.0	4.2	e	2.8	3.2	3.0	4.0	3.6	g	2.6	g	2.9	2.5	2.7	g	g	e	e	3.1	2.5	3.3	4.3	4.3	
12	5.4	3.2	3.8	3.0	2.7	e	e	g	2.0	g	2.3	2.5	c	c	c	c	c	c	c	c	3.5	3.0	b	3.2	
13	4.3	6.0	2.2	2.2	3.2	2.2	3.3	g	2.4	g	2.9	2.3	3.1	3.4	3.0	3.3	2.0	g	e	e	3.9	2.7	3.5	5.5	
14	3.5	4.3	3.1	3.2	3.8	2.6	1.8	g	g	g	2.7	3.1	g	g	c	c	c	e	e	e	e	3.5	2.7	2.7	
15	1.6	3.9	3.8	3.0	e	e	e	g	2.4	2.5	g	3.2	2.7	g	2.9	3.2	2.6	e	e	e	e	3.0	3.3	7.5	8.0
16	8.0	6.5	b	2.9	2.7	3.1	2.5	2.2	2.1	2.4	2.6	2.9	g	2.6	g	2.2	2.0	2.2	b	4.3f	4.1	4.5	e	4.2	
17	4.3	e	6.0	3.7	3.5	2.6	1.7	2.1	2.4	2.7	2.7	3.0	2.9	b	2.6	3.5	1.9	2.1	e	7.5	5.6	4.8	4.8	4.1	
18	3.5	2.7	3.0	e	4.2	3.5	2.9	2.9	g	2.2	2.8	g	g	g	g	g	g	g	e	2.5	3.5	e	e	3.5	
19	e	3.9	3.1	4.0	4.0	3.9	b	3.5	g	g	g	g	2.8	g	g	g	g	e	e	e	e	e	3.2	3.5	
20	4.1f	4.0	1.8	e	3.8	2.6	3.2	2.9	g	g	2.5	g	3.0	3.0	g	3.2	g	e	e	e	e	3.5	4.3	4.5	
21	4.3	4.8	4.7	4.7	4.0	e	e	1.4	g	g	g	g	g	g	g	g	g	g	4.3	4.8	6.0	5.2	5.4	3.9	3.7
22	3.2	3.1	3.5	2.6	3.5	e	e	2.2	2.2	c	g	g	g	g	g	g	5.2	g	e	e	e	2.8	2.1	4.0	
23	4.5	3.0	2.7	2.2	1.8	2.2	2.8	2.9	g	g	g	g	g	g	g	g	g	g	e	e	e	e	2.8	4.3	
24	4.8	e	3.4	3.2	4.2	2.2	2.2	e	g	g	2.6	g	2.7	g	g	g	g	2.0	5.0	4.5	3.6	5.0	5.5	5.0	
25	4.7	e	3.5	2.9	1.6	e	2.1	g	g	2.8	g	g	g	g	g	g	g	g	e	5.0	e	2.2	e	3.7	
26	3.3	e	3.4	3.7	e	e	3.2	1.8	g	g	g	g	g	g	2.6	g	g	1.9	g	2.7	e	e	5.5	3.5	
27	3.3	3.5	4.5	3.5	3.3	e	2.0	g	2.8	2.8	g	g	g	g	g	g	g	g	g	3.4	3.5	5.2	4.7	3.8	
28	3.5	e	e	e	2.7	3.0	3.3	2.6	g	g	g	g	g	2.9	g	g	g	4.3	g	g	4.7	7.0	6.0	5.3	5.5
29	3.5	2.7	3.2	e	e	e	e	g	g	g	g	g	g	g	g	g	g	4.0	4.3	3.5	4.2	5.0	4.2	5.0	
30	5.0	4.3	1.7	4.3	e	e	e	2.1	g	g	g	g	2.8	g	g	g	g	g	3.5	3.2	2.1	4.2	e	e	
31	4.4	5.0	3.8	e	3.1	3.5	2.5	3.2	g	3.1	3.0	3.0	g	g	g	g	g	c	c	c	c	e	e	4.3	
Median	4.3	3.9	3.4	2.9	3.2	2.5	2.1	2.0	**	**	2.2	**	**	**	**	**	**	**	**	**	2.8	3.0	3.3	3.8	4.2
No.	31	31	30	30	30	30	29	30	30	29	30	30	29	28	27	28	28	27	28	28	29	29	28	30	40a

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	e	e	e	100	110	g	g	140	130	110	b	140	g	g	e	e	e	e	e	110	110	120	100
2	110	110	100	120	100	140	e	g	g	g	g	130	140	c	c	c	c	e	e	e	e	e	120	120	120
3	120	120	120	100	100	100	120	110	120	140	120	g	g	g	140	110	e	e	e	e	c	120	120	140	
4	120	120	110	100	b	120	110	110	100	g	g	g	g	120	140	g	g	130	120	150	e	e	130	120	
5	100	110	120	110	110	100	100	110	110	g	140	120	g	g	120	g	g	g	140	130	120	c	130	120	
6	140	110	100	160	e	e	e	100	100	g	g	g	g	120	c	130	g	e	160	120	110	120	120	120	
7	120	100	100	120	e	m	m	m	m	m	m	m	130	g	150	140	130	140	e	m	(140)	m	m	m	
8	100	100	100	100	100	110	e	e	110	110	120	120	130	140	g	110	100	e	e	170	170	130	110	110	
9	120	110	100	120	110	100	e	e	160	150	130	120	g	g	180	g	g	110	130	e	e	e	e	e	
10	e	100	e	100	120	e	e	g	g	110	g	150	140	g	160	130	120	g	140	120	130	e	e	120	
11	120	110	100	e	110	110	100	100	100	g	120	g	140	140	130	g	g	e	e	110	160	120	110	110	
12	120	130	100	100	120	e	e	g	100	g	110	130	c	c	c	c	c	c	c	c	130	140	b	100	
13	110	100	100	100	100	140	110	g	120	g	110	130	130	130	140	150	130	g	e	e	e	130	150	100	
14	100	100	100	100	100	100	140	g	g	g	120	150	g	b	c	c	c	c	e	e	e	e	120	120	120
15	120	100	100	100	e	e	e	g	100	100	g	120	130	g	130	120	120	e	e	e	e	220	200	120	160
16	120	120	b	130	130	120	100	100	110	120	120	120	g	110	g	120	130	150	b	110	110	110	110	100	
17	120	e	100	100	110	100	110	120	110	130	140	130	120	b	130	120	140	120	e	110	120	100	100	110	
18	170	140	140	e	100	100	100	100	g	130	130	g	g	g	g	g	g	e	e	170	140	e	e	120	
19	e	100	100	100	100	100	b	120	g	g	g	g	150	g	g	g	g	e	e	e	e	e	140	160	
20	120	110	130	e	100	100	100	110	g	g	140	g	130	130	g	120	g	e	e	e	e	e	140	120	110
21	110	100	100	100	100	e	c	100	g	g	g	g	g	g	g	g	g	110	100	100	100	100	100	100	
22	120	120	120	130	110	e	e	110	100	c	g	g	g	g	g	g	g	g	e	e	e	e	130	110	
23	100	100	90	90	100	100	100	100	g	g	g	g	g	g	g	g	g	e	e	e	e	e	100	130	
24	100	e	100	100	100	100	100	g	g	g	130	g	140	g	g	g	g	g	120	100	110	110	100	100	
25	100	e	100	110	120	e	130	g	g	g	140	g	g	g	g	g	g	g	e	100	e	150	e	150	
26	120	e	100	100	e	e	120	130	g	g	g	g	g	g	150	g	g	120	g	150	e	e	120	120	
27	100	110	110	120	130	e	130	g	130	120	g	g	g	g	g	g	g	g	g	170	120	110	120	120	
28	160	e	e	e	110	120	100	100	g	g	g	g	160	g	g	g	100	g	g	120	120	120	110	100	
29	100	120	120	e	e	e	e	g	g	g	g	g	g	g	g	g	g	110	110	120	100	100	120	110	
30	100	100	100	100	e	e	e	100	g	g	g	g	150	140	g	g	g	g	140	120	130	120	e	e	
31	100	110	110	c	120	120	120	120	g	130	140	120	g	g	g	g	g	c	c	c	c	e	e	130	
Median	115	110	100	100	110	1																			

HOURLY VALUES OF  $f_oE$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	2.4	2.5	2.2	3.5	2.3	2.0	(1.7)	b							
2								b	b	2.4	2.4	2.3	2.4	c	c	c	c							
3							b	1.9	1.9	2.4	2.5	2.5	2.4	2.5	2.1	1.7	b	b						
4							a	1.9	2.0	2.3	2.5	2.5	2.5	2.1	2.0	2.0	b							
5							a	2.0	2.4	2.6	2.6	2.7	2.6	2.3	2.0	b	b							
6							b	(1.8)	2.0	2.4	2.5	2.5	2.4	c	2.0	b	b							
7							m	m	m	m	m	m	2.5	2.5	2.3	(2.0)	b							
8									1.8	2.1	2.4	2.5	2.5	2.5	2.5	2.5	2.0	b						
9								b	1.8	2.1	2.1	2.7	2.6	2.5	2.1	2.0	2.0	1.8						
10								b	1.8	2.4	2.5	2.5	2.7	2.5	2.5	2.5	2.5	1.8						
11								b	1.3	2.1	3.0	2.5	2.7	2.4	2.3	1.8	1.7	b						
12								b	1.9	2.3	2.2	2.1	c	c	c	c	c							
13								b	1.8	2.5	(2.4)	2.5	2.5	2.7	2.2	2.0	2.0	b						
14								b	1.9	2.4	2.5	2.6	2.5	b	c	c	c	c						
15										2.4	2.6	2.7	2.7	2.7	2.6	b	b							
16								b	2.0	2.1	2.5	2.6	2.6	2.5	2.5	2.0	2.0	b						
17								b	1.9	2.3	2.4	2.5	2.7	b	2.6	2.1	1.9	b	b					
18								b	1.9	2.3	2.6	2.6	2.5	2.5	2.4	2.3	1.6	b	b					
19								a	1.9	2.3	2.4	2.6	2.5	2.5	2.2	2.1	a							
20								b	2.0	2.5	2.6	2.5	2.6	2.6	b	2.1	1.8	b						
21								a	2.0	2.4	2.5	2.6	2.7	2.5	2.5	2.1	1.8	1.8						
22								b	2.0	c	2.4	2.6	2.6	b	2.1	2.1	b	b						
23								(1.5)	1.9	2.4	b	2.5	2.6	2.6	2.6	(2.2)	(2.5)	(2.5)						
24								b	b	2.3	2.5	2.7	2.7	2.5	2.5	2.5	2.2	a						
25								b	b	2.5	2.4	2.4	2.7	2.8	2.6	2.3	1.9	1.5	b					
26								1.6	2.5	2.5	2.5	2.5	3.0	2.5	2.5	2.4	2.5	b	b					
27								1.7	2.1	2.5	2.4	2.6	2.6	2.6	b	b	2.0							
28								b	2.0	2.5	2.5	2.6	2.6	2.6	b	b	b	b						
29								1.7	2.0	2.5	2.5	b	b	2.7	2.6	2.4	2.0	a	a					
30								a	2.4	2.2	2.6	2.6	2.6	2.6	2.4	2.5	1.9	1.5						
31								b	2.1	2.5	2.6	2.8	2.6	2.7	2.8	2.3	1.9	c						
Median								1.7	1.9	2.4	2.5	2.5	2.6	2.5	2.4	2.1	2.0	1.8						
No.								5	23	29	29	29	29	29	26	24	25	18	6					

HOURLY VALUES OF  $h'E$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	120	110	100	120	120	120	b	b							
2								b	b	(100)	(110)	120	120	c	c	c	c	c						
3							b	110	110	120	120	120	110	120	120	110	b	b						
4								a	110	100	120	140	130	100	120	(120)	b							
5								a	130	120	120	120	140	120	110	b	b							
6								b	b	120	120	120	130	110	c	120	b	b						
7							m	m	m	m	m	m	100	110	120	b	b							
8									110	100	100	100	100	120	100	100	100	b						
9								b	100	100	100	110	100	110	100	100	100	100						
10								b	b	100	110	100	100	100	100	120	100	100						
11								b	100	100	100	100	110	100	100	120	100	b						
12								b	100	100	100	100	c	c	c	c	c							
13								b	110	110	100	100	100	90	100	120	110	b						
14								b	100	100	100	100	130	b	c	c	c	c						
15										c	110	100	110	100	100	b	b							
16								b	100	110	100	100	100	100	100	100	100	b						
17								b	100	100	100	100	100	b	100	110	120	b	b					
18								b	110	110	100	100	100	100	100	120	120	b	b					
19								a	100	110	110	110	120	120	120	100	a							
20								b	100	110	120	110	120	100	b	110	120	b						
21								a	110	110	120	120	110	100	100	110	100	(100)						
22								b	100	c	100	100	100	b	110	110	b	b						
23								a	100	100	b	100	100	110	100	100	b	b						
24								b	b	100	100	100	110	100	100	100	120	a						
25								b	b	100	100	100	100	110	110	120	120	120	b					
26								120	110	110	110	120	120	110	120	120	130	b	b					
27								100	110	100	100	110	100	110	b	b	120							
28								a	110	110	100	100	100	100	b	b	b	b						
29								110	100	100	100	b	b	110	120	120	130	a	a					
30								a	120	120	100	100	100	110	100	130	120	130						
31								b	100	100	100	100	110	100	100	100	130	c	c					
Median								*	100	100	100	100	110	100	100	110	120	100						
No.								22	28	29	29	29	29	26	24	23	17	5						

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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								3.0	2.9	3.2	3.1	2.9	3.5	3.3	2.6	2.7	2.6	(2.0)						
2									q	3.1	3.1	3.5	3.5	o	o	o	o	o						
3								2.2	3.0	3.1	3.6	3.5	3.6	3.5	3.4	q								
4										q	3.0	3.4	3.5	3.5	3.4	q								
5									q	3.0	3.1	3.6	3.6	3.5	3.3	3.0f	(2.5)	2.0						
6								a	2.4	2.7	3.5	3.6	3.6	3.5f	o	3.0	b	b						
7										m	m	m	3.5	3.5f	3.1	2.6	2.0	q						
8									q	3.0	3.4	3.4	3.4	3.5	q									
9								q	2.6	3.0	3.3	3.2	q	3.5	3.0	3.0	3.0	2.5	(2.0)					
10									q	2.4	3.5	3.5f	3.5	3.5	3.5	3.0	q	2.7						
11								q	(2.5)	(3.0)	3.0	3.0	3.6	3.6	3.5	2.7	q	(2.5)						
12								b	2.2	(3.2)	3.1	2.9	o	o	o	o	o	o						
13								q	2.5	q	2.7	2.5	(3.5)	3.5	3.2	3.1	3.0	2.5						
14								l	2.5	3.0	3.3	3.6	q	t	t	t	t	t						
15								q	2.4	3.0	3.4	3.5	3.6	3.6	3.5	q								
16								q	(3.0)	3.2	3.1	3.1	3.4	3.0	2.7	3.0	2.4	2.4						
17											q	(3.4)	3.1	b	3.5	3.2	2.9	q						
18								q	2.4	3.2	3.1	3.3	3.5f	3.5	3.5	3.5	2.5	2.5						
19								a	2.7	3.1	3.4	3.6	3.5f	3.5	3.2p	3.2	b	q						
20								a	2.5	2.6	3.5	3.6	3.6	3.4	3.5	3.2	2.5	q						
21								a	2.0	2.4	2.5	2.6	2.7	2.5	2.5	2.1	1.8	1.8						
22								q	2.5	o	2.7	3.8	3.6	b	3.5	3.2	a	q						
23								(2.0)	2.7	3.0	q	3.5	2.9	3.0	3.5	3.4	3.5	q						
24									q	3.3	3.6	3.6	3.7	3.7	3.5	3.4	3.1	q						
25								q	2.6)	1	3.3	3.2	3.3	3.6	3.5	3.3	2.2	2.2	q					
26								q	3.5	3.0	3.0	3.8	3.4	3.5	3.3	q								
27								q	3.3	3.2	3.5	4.0	3.6f	3.5	3.2	2.7	2.4	q						
28								q	2.7	q	3.5	3.5	3.8	3.7	3.6	b	a	q						
29								q	(3.0)	3.5	3.5	b	3.6	3.8p	3.5	3.0	a	a						
30								(2.3)	q	3.1	3.5	3.7	3.7	3.5	3.5	3.5	2.5	q						
31								q	3.0	3.5	3.5	3.5	3.7	3.6	3.0	3.2	2.9	o	o					
Median								*	2.5	3.0	3.4	3.5	3.5	3.5	3.2	2.6	2.4	*						
No.									19	24	28	30	27	26	26	23	18	10						

38a

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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								230	220	200	210	210	220	220	230	230	230	(230)						
2									q	230	240	240	240	o	o	o	o	o						
3								250	240	220	180	230	190	220	230	q								
4										q	210	220	210	220	220	q								
5									q	220	220	240	240	230	210	200	(220)	220						
6								a	240	210	220	230	250	200	o	220	b	b						
7									m	m	m	m	220	190	230	240	240	q						
8									q	240	230	210	230	220	q									
9								q	230	220	220	200	q	210	200	200	200	200	(330)					
10									q	210	230	230	230	200	230	240	220	q	220					
11								q	230	220	220	200	230	230	200	240	q	(220)						
12								b	220	(220)	210	200	o	o	o	o	o	o						
13								q	190	q	170	220	200	230	220	220	240	230						
14								(220)	210	220	210	220	q	t	t	t	t	t						
15								q	190	220	220	(230)	(200)	200	210	q								
16								q	220	220	190	180	240	200	190	190	230	220						
17											q	210	190	b	220	240	220	q						
18								q	220	220	220	200	220	210	220	220	220	240						
19								a	230	230	200	250	220	200	180	230	b	q						
20								a	200	200	200	180	220	200	200	220	210	q						
21								q	220	210	220	240	210	200	200	220	200	q						
22								q	230	o	190	180	180	b	190	220	a	q						
23								(230)	200	200	q	220	200	230	200	220	240	q						
24									q	230	180	210	190	200	220	200	250	q						
25								q	220p	180	230	220	180	240	190	220	200	320	q					
26									q	220	210	240	210	220	220	210	q							
27									q	200	230	230	230	200	230	230	230	240	q					
28								q	220	q	220	210	220	220	240	b	a	q						
29								q	230	190	220	b	220	230	230	220	a	a						
30								250	q	(230)	230	220	240	210	230	220	200	q						
31								q	240	230	230	220	220	220	220	220	o	o						
Median								230	220	220	220	220	220	210	220	220	220	230	*					
No.								5	19	24	28	30	27	26	26	23	19	9						

38b



HOURLY VALUES OF  $h_p \approx 2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

Sweep 1.0 - 13.0 M/s in 1m 55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	u	u	u	u	u	u	250	250	250	250	270	270	c	a	a	a	a
2	na	a	a	a	a	a	b	b	250	250	260	350	300	c	c	c	c	c	280	b	400	250	a	a
3	a	a	a	a	a	a	a	a	260	270	270	(550)	240	270	280	270	240	220	300	340	b	c	a	a
4	c	a	a	a	b	a	a	a	240	250	u	u	u	u	u	u	250	270	300	380	a	350	350	a
5	a	a	a	a	a	a	a	a	250	u	u	u	u	u	u	u	230	230	250	300	280	a	c	c
6	c	a	a	a	b	b	b	a	260	250	u	u	u	u	c	300	b	b	a	a	a	a	a	a
7	a	a	a	a	b	m	m	m	m	m	m	m	u	u	u	270	270	280	290	m	a	m	m	m
8	a	a	a	a	a	a	b	b	260	u	u	u	u	u	270	270	250	300	360	c	c	a	a	a
9	a	a	a	a	a	a	b	u	u	u	u	u	260	u	u	u	260	240	270	270	390	b	b	b
10	b	a	b	a	c	290	c	b	250	u	u	u	u	u	u	u	250	270	u	370	c	c	270	a
11	a	a	a	b	a	a	a	280	250	u	u	u	u	u	u	260	270	260	300	340	c	a	a	a
12	a	a	a	a	a	b	b	240	250	u	u	u	c	c	c	c	c	c	c	c	a	a	c	c
13	c	a	a	280	c	b	a	250	240	250	u	u	u	u	u	250	270	280	280	300	c	a	s	s
14	a	a	c	a	a	a	a	230	230	240	u	u	u	b	c	c	c	c	290	340	b	a	370	(360)
15	a	a	a	a	b	b	b	250	240	u	u	u	u	u	240	280	230	240	270	270	300	(370)	a	a
16	a	a	b	a	a	a	a	250	u	250	u	u	u	u	u	270	250	250	280	a	a	a	b	a
17	a	b	a	a	a	a	a	270	280	250	300	u	u	b	u	u	280	340	b	a	a	a	c	a
18	a	a	a	b	a	a	a	260	250	u	u	u	u	u	u	u	260	u	b	460	a	b	b	a
19	b	a	a	a	a	a	b	250	u	u	u	u	u	u	c	u	b	c	320	290	b	b	c	a
20	a	a	a	b	a	a	a	260	250	250	u	u	u	u	u	u	270	250	310	290	b	a	a	a
21	260	a	a	a	a	350	300	250	250	260	u	u	u	u	u	u	300	270	340	a	a	a	a	a
22	a	a	a	a	a	c	b	260	270	c	u	u	u	b	u	u	a	300	c	b	b	a	a	a
23	a	a	a	a	a	a	a	u	240	u	u	u	u	u	u	u	u	270	250	260	290	b	a	a
24	a	b	a	a	a	a	a	b	280	u	u	u	u	u	u	270	280	300	a	e	378	a	a	a
25	a	b	a	a	a	b	a	b	u	u	u	c	u	u	c	u	260	270	300	320	270	300	b	a
26	a	b	a	a	b	b	c	250	250	u	230	u	u	u	u	u	300	c	c	330	300	290	a	a
27	a	a	a	a	a	b	a	260	270	u	u	u	u	u	300	270	290	270	c	270	a	a	a	a
28	a	a	170	b	a	a	a	c	270	270	u	c	u	u	u	b	u	280	c	300	a	a	a	a
29	a	c	c	b	b	b	250	240	u	u	u	b	u	c	u	310	a	a	a	a	a	a	a	a
30	a	a	a	a	b	b	b	270	280	u	u	u	u	u	u	u	270	280	370	a	c	a	b	b
31	a	a	a	c	a	a	a	280	u	u	u	u	u	u	u	u	280	c	c	c	c	b	c	a
Median	*	*	*	*	*	*	*	255	250	250	*	*	*	*	(270)	270	270	280	290	300	(300)	(300)	*	*
No.								18	24	11					5	14	23	22	19	14	9	5		

HOURLY VALUES OF (M3000)  $P_2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

Sweep 1.0 - 13.0 M/s in 1m 55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	a	a	3.4	3.6	3.2	3.4	3.4	3.3	3.4	3.3	3.4	3.6	3.3	3.2	c	a	a	a	a	
2	a	a	a	a	a	a	b	b	3.4	3.3	3.3	3.1	3.2	c	c	c	c	c	3.2	b	2.5	3.4	a	a	
3	a	a	a	a	a	a	a	a	3.3	3.2	3.5	2.4	3.4	3.5	3.2	3.2	3.4	3.5	3.0	3.1	b	c	a	a	
4	3.1	a	a	a	b	a	a	a	3.5	3.4	3.3	3.2	3.1	3.1	3.2	3.4	3.2	3.1	2.8	a	3.0	2.7	a	a	
5	a	a	a	a	a	a	a	a	3.4	3.5	3.1	3.4	3.3	3.3	3.3	3.4	3.1	3.5	3.1	3.3	a	c	3.6	3.1	
6	3.2	a	a	a	b	b	b	a	3.3	3.5	3.2	3.0	3.0	3.1	c	3.1	b	b	a	a	a	a	a	a	
7	a	a	a	a	b	m	m	m	m	m	m	m	3.2	3.2	3.1	3.2	3.2	3.1	3.2	(3.1)	a	m	m	m	
8	a	a	a	a	a	a	b	b	3.3	3.3	3.2	3.1	3.1	3.2	3.2	3.3	3.5	3.0	2.8	2.9	2.9	a	a	a	
9	a	a	a	a	a	a	b	2.9	3.1	3.3	3.4	3.4	3.3	c	3.2	3.5	3.3	3.4	3.3	3.2	2.7	b	b	b	
10	b	a	b	a	3.2	3.3	3.2	b	3.3	3.4	3.3	3.1	3.4	3.1	3.2	3.4	3.1	3.3	3.4	2.9	3.0	3.2	3.1	a	
11	a	a	a	b	a	a	a	3.2	3.5	3.2	3.1	3.0	3.3	3.2	3.4	3.3	3.2	3.3	3.1	3.4	3.1	a	a	a	
12	a	a	a	a	a	b	b	3.3	3.4	(3.5)	3.6	3.6	c	c	c	c	c	c	c	c	a	a	3.1	2.7	
13	3.1	a	a	3.2	3.5	b	a	3.4	3.1	3.4	3.4	3.3	3.7	3.2	3.5	3.4	3.2	3.1	3.2	3.0	3.0	a	e	(2.9)	
14	a	a	2.9	a	a	a	a	3.6	3.7	3.6	3.2	3.4	3.2	b	c	c	c	c	3.1	(3.0)	b	a	2.7	2.8	
15	a	a	a	a	b	b	a	3.6	3.6	3.6	3.4	3.3	3.2	3.3	3.4	3.1	3.4	3.4	3.2	3.2	2.8	a	a	a	
16	a	a	b	a	a	a	a	3.3	3.6	3.6	3.3	3.0	3.2	3.4	3.3	3.4	3.4	3.3	3.0	a	a	a	b	a	
17	a	b	a	a	a	a	a	3.2	3.0	3.3	3.0	3.2	3.4	b	3.4	3.4	3.3	3.0	b	a	a	a	(2.9)	a	
18	a	a	a	b	a	a	a	3.3	3.5	3.3	3.2	3.5	3.2	3.1	3.2	3.1	3.3	3.1	b	2.6	a	b	b	a	
19	b	a	a	a	a	a	b	3.2	3.2	3.1	3.4	3.2	3.0	3.0	c	2.9	b	3.2	2.9	3.2	b	b	2.9	a	
20	a	a	a	b	a	a	a	3.1	3.4	3.3	3.2	3.4	3.8	3.2	3.1	3.2	3.3	3.4	3.0	3.4	b	a	a	a	
21	3.3	a	a	a	a	2.9	3.1	3.6	3.5	3.2	3.5	3.1	3.2	3.2	3.3	3.1	3.2	2.9	a	a	a	a	a	a	
22	a	a	a	a	a	c	b	3.3	3.4	c	3.2	3.0	3.1	b	2.9	3.2	a	3.2	3.1	b	b	a	a	a	
23	a	a	a	a	a	a	a	3.3	3.6	3.1	3.3	3.1	3.5	3.6	3.3	3.3	3.4	3.3	3.3	3.3	3.1	b	a	a	
24	a	b	a	a	a	a	a	b	3.2	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.3	a	2.7	2.7	a	a	a	
25	a	b	a	a	a	b	a	b	3.3	3.7	3.0	c	3.9	2.5	c	2.9	3.3	3.2	3.1	3.2	3.5	3.3	b	a	
26	a	b	a	a	b	b	2.9	3.3	3.4	3.6	3.6	3.6	3.1	3.1	3.5	3.1	3.2	3.1	3.2	3.0	3.1	3.2	a	a	
27	a	a	a	a	a	b	a	3.3	3.3	3.2	3.0	3.0	2.9	3.0	3.1	3.3	3.3	3.2	3.3	2.9	3.1	a	a	a	
28	a	a	4.1	b	a	a	a	3.6	3.6	3.2	3.0	c	3.1	2.8	3.0	b	3.2	3.0	c	3.2	a	a	a	a	
29	a	2.8	2.9	b	b	b	2.6	3.3	3.2	3.3	2.9	2.8	b	3.5	c	3.1	3.1	a	a	a	a	a	a	a	
30	a	a	a	a	b	b	b	3.3	3.1	3.3	2.7	2.8	3.2	3.2	2.9	2.9	3.4	3.4	2.8	a	2.8	a	b	b	
31	a	a	a	c	a	a	a	3.2	3.3	3.0	3.1	3.4	2.5	2.8	3.0	3.1	3.2	c	c	c	c	b	a	a	
Median	*	*	*	*	*	*	*	3.3	3.4	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.2	3.1	3.2	3.0	(3.2)	(3.0)	*
No.								22	30	29	30	28	29	25	24	27	25	25	22	18	14	6	6		

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	3.2	3.7	3.8	3.6	3.6	4.4	4.1	4.3	4.1	3.4	3.4p	2.4f	c	a	a	a	a
2	a	a	a	a	a	a	b	b	2.7	4.0	3.7	3.8	4.2p	c	c	c	c	c	2.2	b	2.4p	2.5	a	a
3	a	a	a	a	a	a	a	2.8	3.7	3.9	3.8	4.3	4.5	4.5	4.5	4.2	3.5	2.5f	1.9f	b	c	a	a	a
4	2.1	a	a	a	b	a	a	a	3.0	3.5	3.8	4.0	4.0	4.0	4.2	4.0	3.6	2.5f	2.5	a	2.4	2.4	a	a
5	a	a	a	a	a	a	a	a	2.7f	3.5	3.7	4.2f	4.5	4.3	4.3	4.3f	3.8	3.2	2.6	2.0	a	c	(2.6)	1.9
6	2.5	a	a	a	b	b	a	3.3	3.6	4.0	4.0	m	4.5	c	4.3	b	b	a	a	a	a	a	a	a
7	a	a	a	a	b	m	m	m	m	m	m	m	3.8	3.8	4.0	3.8	3.8	3.4	2.5	(2.7)	a	m	m	m
8	a	a	a	a	a	a	b	b	3.2	3.6	3.8	4.0	4.0	3.7	4.1	4.6	4.0	3.5	2.3	1.9	2.0	a	a	a
9	a	a	a	a	a	a	b	2.0f	2.8	3.5	3.8	4.2	4.5	(4.2)	3.6	3.7	4.1	4.2	3.5	2.5f	2.5	b	b	b
10	b	a	b	a	2.1	1.8	1.5	b	2.0	3.0	3.9f	4.0	4.0	4.5	4.1	4.8	4.3	4.5	3.5	3.1f	2.1	2.1f	2.0	a
11	a	a	a	b	a	a	a	2.0	3.5	4.0p	3.6	4.2	4.1	4.7	4.3	4.0	4.2	4.1	2.7	1.9f	2.0	a	a	a
12	a	a	a	a	a	b	b	2.1	3.1	(3.8)	3.7	3.6	c	c	c	c	c	c	c	c	a	a	1.9	2.0
13	2.0	a	a	1.7	1.4	b	a	2.0	3.5	3.8	3.6	4.1	4.1	4.7	4.2	4.1	4.2	3.7	3.0	2.7f	1.8	a	2.7	2.8
14	a	a	(2.0)	a	a	a	a	2.0	3.5	4.0	3.8	4.2	3.4	b	c	c	c	c	2.7	(2.5)	b	a	2.8	2.5
15	a	a	a	a	b	b	b	2.0	3.5	3.8	4.2p	3.7p	4.4p	4.9	4.9	4.4	4.6p	4.0	3.4	2.4f	2.1	2.0	a	a
16	a	a	b	a	a	a	a	2.4p	3.5	3.9	4.0	4.1	4.0	3.5	4.0	4.3	3.5	3.9	3.4p	a	a	a	b	a
17	a	b	a	a	a	a	a	2.3	3.7	3.7	4.0p	4.0	3.6p	b	4.3p	4.0	3.8	3.2	b	a	a	a	2.4	a
18	a	a	a	b	a	a	a	2.4	3.3	3.6	3.7	3.8	4.0	4.4p	4.2	3.8	3.8	3.4p	b	2.2	a	b	b	a
19	b	a	a	a	a	a	b	2.4f	3.4	3.8p	3.6	4.1p	3.8	3.1	c	4.1	b	3.8p	3.0	2.2	b	b	2.7	a
20	a	a	a	b	a	a	a	2.5	3.4	3.6	4.0	3.8	4.0	4.5	4.1	4.3	4.2	2.8	3.0	2.7f	b	a	a	a
21	3.7p	a	a	a	a	1.7	1.5p	2.5	3.4	3.7	4.0p	4.2	4.3	4.0	4.2p	4.5	4.3	3.2	a	a	a	a	a	a
22	a	a	a	a	a	(1.3)	b	2.5	3.3	c	3.7	4.1	4.5	b	4.8	3.7	a	2.5	1.7	b	b	a	a	a
23	a	a	a	a	a	a	a	2.7	3.4	3.6	3.7	3.7	3.6	3.7	4.0	4.0	3.8	3.5	2.8	2.4	(1.7)	b	a	a
24	a	b	a	a	a	a	a	b	3.5p	3.5p	4.0	4.0	4.2	4.4	4.7	4.5	4.5	1.7	a	1.9	2.4	a	a	a
25	a	b	a	a	a	b	a	b	3.3	(3.5)	3.5	c	3.6	3.8	3.7	3.8	3.8	3.5	2.8	2.0	(2.0)	2.1	b	a
26	a	b	a	a	b	b	(1.9)	2.8	3.4	4.0	3.8	3.5f	4.1	3.9	4.7	4.0	3.5	2.0	(2.1)	2.1	2.4f	2.5	a	a
27	a	a	a	a	a	b	a	2.7	3.5	3.7	3.7	3.9	4.7	4.1	5.0	4.5	3.7	3.5	2.7	2.0	2.8	a	a	a
28	a	a	1.8	b	a	a	a	2.7	3.5	3.7	4.2	c	4.0	4.4	4.2	b	(4.0)	3.7	c	2.1	a	a	a	a
29	a	2.0	1.8	b	b	b	1.5	2.6	3.5	3.5	3.7	3.8	b	3.8	c	4.4	3.9	a	a	a	a	a	a	a
30	a	a	a	a	b	b	b	2.8	3.4	3.6	3.8	4.0p	4.3p	4.0	4.2	4.2	4.1	3.5	3.1	a	1.8	a	b	b
31	a	a	a	c	a	a	a	2.8	3.6	3.5	3.8	4.2	4.1p	4.3	3.6	3.8	4.3	c	c	c	c	b	a	a
Median	*	*	*	*	*	*	*	2.5	3.4	3.7	3.8	4.0	4.1	4.1	4.2	4.1	3.9	3.5	2.7	2.2	2.1	(2.2)	(2.4)	*
No.								23	30	29	30	28	29	25	26	26	25	25	22	18	14	6	7	

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING AUGUST 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	a	a	a	a	300	230	260	300	270	280	250	240	240	240	240	270	c	a	a	a	a
2	a	a	a	a	a	a	b	b	250	250	260	350	300	c	c	c	c	c	280	b	400	250	a	a
3	a	a	a	a	a	a	a	260	270	270	(550)	240	270	280	270	240	220	300	340	b	c	a	a	a
4	350	a	a	a	b	a	a	a	230	230	250	320	350	330	300	240	230	270	380	a	290	340	a	a
5	a	a	a	a	a	a	a	a	230	250	(300)	250	270	270	230	230	230	230	270	270	a	c	280	340
6	330	a	a	a	b	b	a	250	220	320	360	340	320	c	300	b	b	a	a	a	a	a	a	a
7	a	a	a	a	b	m	m	m	m	m	m	m	350	330	330	270	260	230	280	m	a	m	m	m
8	a	a	a	a	a	a	b	b	240	270	320	320	320	350	240	270	240	250	340	340p	320p	a	a	a
9	a	a	a	a	a	a	b	300	(400)	270	270	250	230	270	220	250	250	230	240	250	350	b	b	b
10	b	a	b	a	340	280	c	b	250	240	230	320	280	300	300	250	240	240	250	310	350	280	260	a
11	a	a	a	b	a	a	a	260	250	350	290	250	300	300	290	250	240	240	240	340	400	a	a	a
12	a	a	a	a	a	b	b	240	250	280	260	270	c	c	c	c	c	c	c	c	a	a	360	(370)
13	360	a	a	280	270	b	a	230	240	230	250	280	260	300	240	230	250	260	220	200	370	a	a	(400)
14	a	a	(320)	a	a	a	a	230	220	240	320	270	240	b	c	c	c	c	270	(310)	b	a	(320)	(330)
15	a	a	a	a	b	b	b	230	240	250	250	280	270	270	240	220	230	220	270	240	(270)	(350)	a	a
16	a	a	b	a	a	a	a	250	250	250	240	240	270	250	270	270	250	230	230	a	a	a	b	a
17	a	b	a	a	a	a	a	250	230	220	240	300	270	b	280	260	270	290	b	a	a	a	c	a
18	a	a	a	b	a	a	a	250	240	260	250	260	350	300	320	320	250	300	b	430	a	b	b	a
19	b	a	a	a	a	a	b	250	250	280	300	320	350	350	c	350	b	240	270	270	b	b	c	a
20	a	a	a	b	a	a	a	240	240	230	320	320	270	290	330	290	250	230	260	270	b	a	a	a
21	220	a	a	a	a	330	300	240	240	260	270	320	330	340	290	300	240	300	a	a	a	a	a	a
22	a	a	a	a	a	(350)	b	240	250	c	240	400	310	b	330	330	a	300	350	b	b	a	a	a
23	a	a	a	a	a	a	a	240	230	300	430	400	250	250	300	280	290	250	240	280p	b	a	a	a
24	a	b	a	a	a	a	a	b	250	(330)	350	320	280	320	270	270	280	300	a	(450)	370	a	a	a
25	a	b	a	a	a	b	a	b	370	240	400	c	240	(520)	(550)	330	240	240	240	320	270	300	b	a
26	a	b	a	a	b	b	400	250	240	250	230	270	350	300	270	320	300	300	330	330	300	290	a	a
27	a	a	a	a	a	b	a	240	250	280	320	320	370	330	300	270	260	260	250	c	(250)	a	a	a
28	a	a	170	b	a	a	a	250	270	240	370	c	370	370	370	b	300	250	320	300	a	a	a	a
29	a	350	360	b	b	b	(320)	250	230	250	370	(450)	b	300	c	300	310	a	a	a	a	a	a	a
30	a	a	a	a	b	b	b	270	260	260	420	(370)	340	340	350	330	270	240	340	a	(400)	a	b	b
31	a	a	a	c	a	a	a	250	280	400	350	290	530	270	330	340	280	c	c	c	c	b	(470)	a
Median	*	*	*	*	*	*	*	250	250	250	300	310	300	300	290	270	250	250	270	305	335	(295)	(320)	*
No.								22	30	29	30	28	29	26	25	27	25	25	23	16	14	6	5	

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	c	e	e	c	c	c	c	c	c	e	e	e	e	2.3	2.8	c	c	c	c	5.3	7.3	7.2	6.2	4.9	5.0	
7	6.1	2.2	2.3	e	e	e	e	2.8	g	g	g	g	2.6	4.1	g	g	2.1	b	b	2.2	2.2	2.2	5.2	2.6		
8	2.6	2.2	2.2	2.2	1.6	e	e	e	1.9	2.2	2.3	b	2.7	2.5	2.1	g	2.0	e	e	e	e	e	5.1	6.5		
9	8.0	2.2	(1.5)	3.7	e	3.2	e	e	1.9	2.1	2.6	2.8	2.6	2.2	g	2.0	1.7	1.8	e	e	e	c	c	c		
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	g	e	4.8	4.0	6.7		
11	4.7	3.8	2.3	1.5	e	e	e	e	5.8	4.0	5.0	2.7	2.3	2.3	g	g	1.7	e	e	2.0	e	1.7	2.8	2.2		
12	2.0	2.0	2.6	2.4	1.5	e	e	e	2.0	2.5	2.7	5.7	6.0	5.5	3.0	2.7	2.3	2.3	e	e	e	2.2	4.1	2.2		
13	2.8	2.2	2.2	c	c	c	c	c	c	c	c	c	1.9	2.6	2.4	2.6	2.0	2.0	e	e	3.2	e	3.4	4.2		
14	3.8	5.4	2.1	2.5	c	c	c	c	c	c	c	c	c	g	2.1	2.0	4.0	2.5	3.4	3.0	3.4	5.2	6.0	6.0		
15	3.5	3.8	2.1	7.5	3.5	2.2	2.1	e	g	2.1	g	2.4	2.4	2.4	g	g	g	2.4	2.4	2.2	5.0	2.1	8.6	e		
16	2.2	6.7	b	2.2	2.1	e	e	e	c	2.2	2.2	3.0	3.1	5.2	5.3	2.8	2.3	e	e	e	e	e	e	e		
17	6.5	2.2	4.5	3.8	e	ba	2.8	5.5	2.5	2.5	2.7	2.5	2.3	3.0	2.0	g	8.0	e	5.2	7.5	6.1	2.2	2.2	c		
18	4.9	5.8	6.7	3.7	3.2	3.2	e	e	2.8	2.4	7.5	g	2.5	g	g	g	g	e	6.5	e	e	e	e	3.8		
19	2.1	2.2	2.2	e	e	e	e	e	g	g	g	g	g	g	g	g	c	e	c	e	e	2.2	1.9	4.7	c	
20	2.2	2.2	3.5	7.5	3.8	3.5	2.2	e	1.6	2.2	2.1	g	g	2.9	2.8	2.2	e	e	e	e	4.7	2.5	2.2	2.2	5.6	
21	6.5	2.2	5.7	1.9	1.8	e	1.7	e	2.3	g	2.6	6.0	2.8	2.9	b	7.8	7.5	e	e	e	e	2.1	2.8	2.4		
22	3.1	2.5	4.8	2.3	2.1	e	e	2.1	7.5	g	g	2.5	2.7	2.8	2.5	2.2	g	e	2.2	e	2.3	2.1	6.5	2.3		
23	2.2	2.1	2.1	3.5	b	2.3	e	e	2.1	2.2	g	g	3.3	2.6	g	2.1	e	e	e	e	e	1.9	6.0	5.5		
24	3.8	2.3	2.1	e	2.2	2.1	e	e	5.5	2.2	2.5	2.7	2.7	3.2	g	c	c	c	c	c	4.0	4.5	6.7	2.2		
25	2.4	2.2	e	3.3	2.8	5.5	2.2	2.1	g	3.1	8.0	10.0	7.8	5.5	g	g	g	2.3	6.0	5.8	5.8	4.4	6.7	4.2		
26	5.1	4.2	6.0	4.8	2.7	1.7	3.2	3.1	3.3	2.5	2.9	3.0	5.5	6.5	2.9	g	3.6	e	e	2.2	7.0	5.5	4.7	4.6		
27	5.7	c	c	3.0	3.5	3.7	3.1	2.5	1.8	2.2	2.4	g	c	c	c	c	c	e	e	e	e	1.7	3.3	3.3		
28	4.5	4.5	3.7	3.2	3.1	3.6	3.0	2.6	2.1	g	g	g	2.4	2.7	2.8	g	g	g	e	2.5	e	e	2.8	8.0	e	4.0
29	6.3	5.0	6.0	4.5	e	2.7	e	e	g	g	g	2.4	2.7	2.8	g	g	g	e	e	e	e	4.0	3.2	4.7	3.0	
30	e	3.2	e	e	e	e	3.5	3.7	g	g	g	2.7	2.8	2.7	g	g	g	e	e	e	e	e	e	e	4.2	
31	3.6	2.9	2.6	2.5	1.8	e	e	e	e	c	c	c	c	c	2.8	g	g	g	e	e	3.5	3.0	e	e	3.8	
Median	3.7	2.3	2.3	2.5	1.8	1.7	**	**	1.9	2.2	2.3	2.5	2.6	2.8	**	**	1.7	**	**	**	**	2.2	2.2	4.1	4.0	
No.	24	23	22	23	21	21	22	22	21	21	21	20	22	24	21	22	21	22	22	25	26	24	25	23	35a.	

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	c	e	e	c	c	c	c	c	c	c	c	c	130	120	c	c	c	c	100	120	110	120	100	100	
7	120	130	120	e	e	e	e	100	g	g	g	g	100	120	g	g	110	b	b	100	120	100	100	120	
8	110	120	120	140	150	e	e	e	120	120	110	b	120	110	110	g	120	e	e	e	e	e	110	100	
9	110	160	170	100	e	140	e	e	110	140	130	120	120	120	g	130	120	140	e	e	e	c	c	c	
10	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	e	e	e	120	110	110
11	110	100	100	130	e	e	e	e	100	120	110	110	110	110	g	g	150	e	e	140	e	120	120	120	
12	110	150	120	110	140	e	e	e	120	170	160	120	130	130	130	110	120	100	e	e	e	130	140	140	
13	120	110	130	e	c	c	c	c	c	c	c	c	e	120	130	110	140	110	110	e	e	100	s	130	120
14	120	100	110	100	c	c	c	c	e	c	c	c	c	g	110	150	100	160	120	150	130	110	110	110	
15	120	100	100	100	100	100	100	e	g	100	g	140	130	120	g	g	g	140	140	100	110	120	100	e	
16	100	100	b	100	100	e	e	e	c	130	130	140	140	120	120	110	100	e	e	e	e	e	e	e	
17	100	110	100	100	e	ba	100	90	100	100	120	110	120	130	g	120	e	120	130	150	180	150	c		
18	100	110	120	100	100	100	e	e	130	120	120	g	120	g	g	g	g	170	e	e	e	e	e	120	
19	130	100	100	e	e	e	e	e	g	g	g	g	g	g	c	g	c	e	c	e	120	120	110	c	
20	110	110	110	110	110	100	110	e	120	110	110	g	g	130	130	150	e	e	c	120	130	130	180	120	
21	100	140	110	100	130	e	100	e	100	g	110	110	100	130	b	100	100	e	e	e	e	150	140	140	
22	130	120	110	110	100	e	e	100	100	g	g	160	150	150	140	130	g	e	170	g	150	150	150	120	
23	130	110	160	120	b	130	e	e	120	120	g	g	120	130	g	150	g	e	e	e	e	150	120	120	
24	120	120	140	e	100	110	e	e	120	140	160	170	150	130	g	c	c	c	c	c	c	140	120	110	120
25	170	150	e	110	110	120	120	130	g	120	120	130	120	120	g	g	g	100	110	120	110	110	120	120	
26	100	120	100	120	140	140	120	110	110	120	120	120	130	110	130	g	150	e	e	170	120	110	110	100	
27	120	c	c	100	100	120	120	120	100	120	120	g	c	c	c	c	c	e	e	e	e	140	130	100	
28	100	100	100	110	110	100	110	100	130	g	g	g	140	g	g	g	g	e	150	e	e	140	110	e	100
29	100	110	110	100	e	130	e	e	g	g	g	130	140	140	g	g	g	e	e	e	e	120	120	100	120
30	e	100	e	e	e	e	140	130	g	g	g	100	120	100	g	g	g	e	e	e	e	e	e	e	e
31	100	120	100	120	150	e	e	e	c	c	c	c	c	c	130	g	g	g	e	e	150	170	e	e	120
Median	110	110	110	110	110	120	110	105	115	120	120	120	120	120	130	130	120	140	120	125	120	120	115	120	
No.	23	23	20	19	14	11	9	8	14	14	13	13	20	20	9	9	11	7	7	10	15	19	20	20	35b.

HOURLY VALUES OF  $f_oE$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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									c	c	c	c	2.2	2.2	c	c	c							
7									1.6	1.8	2.0	2.2	1.9	2.2	2.0	1.9								
8									1.7	1.8	2.0	2.2	2.1	2.0	2.1	1.9h	1.7							
9									a	1.7	2.0	2.3	2.2	b	b	b	b							
10									c	c	c	c	c	c	c	c	c							
11									1.6	2.0	b	2.0	2.2	1.9	2.2	1.8	b							
12									1.9	1.9	2.2	2.2	2.5	1.9	2.1	(1.7)	b							
13									c	c	c	c	b	2.0	2.0	1.8	1.6							
14									c	c	c	c	c	2.2	2.0	1.6	b							
15									b	1.8	2.1	2.1	2.1	2.2	2.0	1.8								
16									c	1.8	2.0	2.1	2.1	2.0	1.9	2.0	b							
17									a	2.1	2.1	2.2	2.1	1.8	1.8	b	a							
18									a	(2.1)	b	2.0	2.2	2.0	2.0	b	b							
19									c	c	b	c	b	b	c	b	c							
20										1.8	2.0	2.3	2.5	2.1	2.1	2.0	1.8	(1.5)						
21										1.9	2.0	b	2.1	2.0	2.0	b	b							
22									a	1.8	2.1	2.1	2.1	2.1	2.0	2.0	2.0							
23									a	1.8	2.2	2.2	2.1	2.1	2.1	1.8	1.8							
24									a	1.9	2.1	2.1	2.1	2.1	2.1	c	c							
25									1.6	b	2.1	2.1	c	2.1	2.1	2.0	1.9							
26									a	a	2.0	2.1	2.2	2.0	2.0	2.1	a							
27										1.9	2.1	b	c	c	c	c	c							
28									1.9	1.7	2.0	2.1	2.0	2.1	2.2	1.9	b							
29									b	b	b	2.1	2.5	2.4	b	b	b							
30									b	2.0	2.1	2.5	2.5	2.3	2.1	(2.1)	(2.0)							
31									c	c	c	c	c	2.4	2.1	2.1								
Median																								
No.									6	17	17	18	19	22	20	16	7	*						

34a.

HOURLY VALUES OF  $h' E$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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									c	c	c	c	100	100	c	c	c							
7									110	100	100	100	100	100	100	110								
8									110	110	100	100	100	100	100	100	120							
9									a	140	110	100	110	(110)	b	b	b							
10									c	c	c	c	c	c	c	c	c							
11									100	100	b	110	100	100	120	140	b							
12									120	110	100	100	100	100	100	110	b							
13													b	120	100	110	110	b						
14									c	c	c	c	c	100	100	140	b	b						
15									b	100	100	100	100	100	100	120								
16									c	120	100	110	100	100	100	100	b							
17									a	90	90	100	100	100	100	120	b	a						
18									a	a	b	100	100	120	100	b	b							
19									c	c	b	c	b	b	c	b	c							
20										110	100	110	110	120	120	100	(150)							
21										110	100	b	100	120	110	b	b							
22									a	100	100	100	110	110	110	120	130							
23									a	120	100	100	100	100	100	100	100							
24									a	100	100	100	120	110	110	c	c							
25									120	b	110	120	c	100	110	110	120							
26									a	a	100	110	120	110	120	110	a							
27										100	110	b	a	a	c	c	c							
28									110	110	110	(100)	110	120	120	130	b							
29									b	b	b	120	130	(120)	b	b	b							
30									b	110	120	100	100	100	120	b	b							
31									c	c	c	c	c	110	130	c								
Median																								
No.									110	110	100	100	100	100	110	110	120							

34b.

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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										NO DATA	1st - 5th	INCLUSIVE												
4																								
5																								
6									c	c	c	c	3.5	3.1	c	c	c	c						
7									q	(2.5)	3.2	3.0	3.3	(3.0)	(3.0)	q								
8									q	(2.5)	2.6	3.2	3.3	3.1	(3.0)	q								
9									q	2.4	3.1	(3.0)	3.3	3.0	3.0	(2.5)	(2.5)							
10									c	c	c	c	c	c	c	c	c							
11									q	(2.5)	q	(3.0)	3.1	2.6	(2.9)	3.0	q							
12									q	(2.5)	q	q	3.1	(3.0)	q									
13									c	c	c	c	(2.7)	2.6	2.5	2.4	2.6	q						
14									c	c	c	c	c	2.6	2.6	q								
15									q	(2.4)	q	2.7	q	3.2	q									
16									c	a	a	3.1	3.0	3.0	3.1	3.0	(2.5)							
17									q	2.7	3.2	3.2	3.2	3.0	b	a								
18									q	2.7	a	3.2	3.0	3.0	q	(2.7)	3.1							
19									q	2.6	b	q												
20									q	2.7	q	3.3	3.4	3.1	3.0	2.5	b	2.6						
21									q	(2.5)	a	(3.5)	3.2	3.1	a	a								
22									q	3.1	q	3.2	3.6	q	(2.7)	q								
23									q	2.6	3.0	3.1	3.0	3.3	3.0	(2.5)	q							
24									q	3.0	3.2	3.3	3.0	3.5	q									
25								1.7	(2.1)	2.6	a	a	a	3.1	3.1	2.9	(3.5)	q						
26									(1.8)	1.7	q	(2.6)	a	a	q	2.9	q	b						
27								b	2.1	2.6	2.9	3.0	c	c	c	c	c	b						
28									(2.4)	2.4	2.8	2.8	2.7	2.8	q	(3.1)	b							
29									q	3.2	3.1	3.3	3.5	b	b	b								
30									q	(2.6)	q	3.3	3.5	3.1	2.7	(2.5)	q							
31									c	c	c	c	c	3.5	(2.7)	q								
Median								*	*	2.6	2.8	3.1	3.2	3.1	3.0	(2.7)	(2.6)	*						
No.										14	12	16	17	22	15	13	5							

33a.

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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										NO DATA	1st - 5th	INCLUSIVE												
4																								
5																								
6									c	c	c	c	220	300	c	c	c	c						
7									q	220	240	230	230	240	240	q								
8									q	240	220	210	220	230	240	q								
9									q	220	240	200	180	180	220	210	210							
10									c	c	c	c	c	c	c	c								
11									q	210	q	220	210	180	220	210	q							
12									q	200	q	q	230	220	q									
13													(230)	200	200	180	200							
14									c	c	c	c	c	200	230	q								
15									q	210	q	240	q	200	q									
16									c	a	a	220	(200)	(230)	230	220	200							
17									q	180	200	230	230	230	b	a								
18									q	200	a	230	230	230	q	230	230							
19									q	220	b	q												
20									q	230	q	230	230	220	210	220	b	230						
21									q	200	a	(190)	230	210	a	a								
22									q	240	q	250	240	q	230	q								
23									q	210	200	200	210	220	230	240	q							
24									q	250	230	250	230	230	q									
25								200	150	220	a	a	a	200	210	230	(220)	q						
26									(230)	190	q	200	a	a	q	230	q	b						
27								b	230	220	240	220	c	c	c	c	c	b						
28									240	230	230	240	230	220	q	220	b							
29									q	240	220	250	240	b	b	b								
30									q	220	q	200	210	210	230	200	q							
31									c	c	c	c	c	210	200	q								
Median								*	*	220	225	220	230	225	220	220	210	*						
No.										15	12	16	17	22	14	13	5							

33b.

HOURLY VALUES OF hpP2 OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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										NO DATA	1st	5th	INCLUSIVE											
4																								
5																								
6	a	a	a	a	a	a	a	a	a	a	a	a	260	260	a	a	a	a	a	b	b	b	b	b
7	a	a	a	b	b	b	b	a	u	250	u	u	u	u	u	u	270	290	b	a	a	a	a	a
8	a	a	a	a	a	b	b	b	250	u	230	u	u	250	250	280	250	340	280	b	b	b	a	a
9	a	a	a	a	b	a	b	b	250	250	260	u	u	u	270	270	240	270	260	310	b	a	a	a
10	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b	a	a	a
11	a	a	a	b	b	b	b	b	240	240	230	240	240	260	240	230	250	250	300	a	a	a	a	a
12	a	a	a	a	a	b	b	b	240	240	240	250	250	240	240	240	260	260	a	b	b	a	a	a
13	a	a	a	a	a	a	a	a	a	a	a	a	a	270	250	250	260	240	230	250	300	a	280	a
14	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	270	260	320	a	a	a	a	a	a
15	340	a	a	a	a	a	a	b	250	u	220	u	u	u	b	250	250	a	a	a	a	a	a	b
16	a	a	b	a	a	b	b	b	a	a	a	u	u	u	a	240	230	280	290	b	b	b	b	b
17	a	a	a	a	b	b	a	a	u	250	270	u	u	260	260	b	a	300	a	a	a	a	a	a
18	a	a	a	a	a	a	b	b	230	u	a	u	u	u	250	270	320	a	b	b	b	b	a	a
19	a	a	a	b	b	b	b	b	270	u	b	u	b	b	a	250	a	a	a	b	a	a	a	a
20	a	a	a	a	a	a	a	b	250	240	250	u	u	u	u	260	260	270	b	a	a	a	270	a
21	a	a	a	a	a	b	b	b	210	220	240	a	u	a	a	a	300	250	a	b	a	a	a	a
22	a	a	a	a	a	b	b	a	260	u	270	u	u	240	230	250	280	a	a	a	a	a	a	a
23	a	a	a	a	b	a	b	b	250	u	u	250	250	250	240	250	280	260	260	b	360	a	a	a
24	a	a	a	300	a	a	b	b	250	270	u	u	u	u	240	a	a	a	a	a	a	a	a	a
25	320	a	b	a	a	a	a	240	250	u	240	a	260	u	u	250	270	280	a	a	a	a	a	a
26	a	a	a	a	a	a	a	a	240	220	u	210	a	u	270	300	290	b	a	a	a	a	a	a
27	a	a	a	a	a	a	a	250	250	250	270	270	a	a	a	a	300	360	b	b	a	a	a	a
28	a	a	a	a	a	a	a	a	u	250	250	u	u	270	280	300	b	a	b	b	a	a	b	a
29	a	a	a	a	b	a	b	b	280	280	u	u	u	u	b	b	280	b	b	b	a	a	a	a
30	b	a	b	b	b	b	a	a	u	260	260	u	u	230	u	270	240	280	270	b	b	b	b	a
31	a	a	a	a	a	b	b	b	a	a	a	a	a	u	270	270	250	280	b	a	a	b	b	a
Median	*			*				*	250	250	245	(250)	(255)	(250)	250	260	250	280	(270)	*		*	*	*
No.									15	14	12	6	6	10	14	18	18	16	9					

32a.

HOURLY VALUES OF (M3000)F2 OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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										NO DATA	1st	5th	INCLUSIVE											
4																								
5																								
6	a	a	a	a	a	a	a	a	a	a	a	a	3.5	3.4	a	a	a	a	a	a	b	b	b	b
7	a	a	a	b	b	b	b	a	3.4	3.5	3.3	3.2	3.6	3.1	3.3	3.3	3.2	3.1	b	a	a	a	a	a
8	a	a	a	a	a	b	b	b	3.3	3.3	3.7	3.3	3.5	3.5	3.6	3.2	3.2	2.7	3.2	b	b	b	a	a
9	3.1	3.5	4.0	a	b	a	b	b	3.3	3.5	3.5	3.7	3.3	3.1	3.3	3.3	3.6	3.3	3.4	3.2	b	a	a	a
10	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b	a	a	a
11	a	a	3.2	b	b	b	b	b	3.3	3.6	3.6	3.7	3.6	3.3	3.6	3.8	3.4	3.3	3.3	3.1	3.6	a	a	4.1
12	4.2	a	a	a	a	b	b	b	3.5	3.4	3.6	3.3	3.3	3.6	3.6	3.6	3.3	3.1	3.5	b	b	a	a	a
13	a	a	a	a	a	a	a	a	a	a	a	a	a	3.4	3.6	3.5	3.7	3.5	3.5	3.2	3.0	a	2.8	a
14	a	a	a	a	a	a	a	a	a	a	a	a	a	a	3.7	3.3	3.3	3.1	2.7	2.8	2.7	a	a	a
15	2.9	a	a	a	a	a	a	b	3.4	3.4	3.7	3.5	3.3	3.6	b	3.5	3.3	a	a	a	a	a	a	b
16	a	a	b	a	a	b	b	b	a	a	a	3.5	3.3	3.7	a	3.5	3.8	3.1	3.0	b	b	b	b	b
17	a	3.1	a	a	b	b	a	a	3.1	3.4	3.3	3.1	3.4	3.5	3.6	b	a	3.0	2.7	a	3.1	3.0	b	a
18	a	a	a	a	a	a	b	b	3.4	3.4	a	3.1	3.2	3.2	3.3	3.3	3.1	3.1	a	b	b	b	a	a
19	a	a	a	b	b	b	b	3.8	3.5	3.2	b	3.2	b	b	a	3.5	a	b	a	b	a	3.2	a	a
20	a	a	a	a	a	a	a	b	3.2	3.6	3.4	3.3	3.3	3.5	3.2	3.2	3.3	3.3	b	a	3.9	a	3.4	a
21	a	a	a	a	a	b	a	b	3.7	3.7	3.5	a	3.5	3.5	3.6	a	a	3.0	3.4	3.4	(2.9)	a	a	3.1
22	a	a	a	a	a	b	b	a	3.6	3.3	3.5	3.3	3.4	3.6	3.6	3.6	3.2	3.1	3.1	2.9	3.2	a	a	a
23	3.2	a	a	3.8	a	a	b	b	3.4	3.5	3.7	3.5	3.5	3.6	3.6	3.5	3.3	3.1	3.1	3.2	b	2.9	a	a
24	a	a	a	3.1	3.2	a	b	b	3.3	3.4	3.7	3.4	3.4	3.2	3.6	a	a	a	a	a	a	a	a	a
25	3.0	a	b	a	a	a	a	a	3.3	3.3	3.4	3.5	a	3.5	3.9	3.2	3.4	3.2	3.1	a	a	a	a	a
26	a	a	a	a	a	a	a	a	3.3	3.3	3.2	3.4	a	3.2	3.3	3.2	3.2	b	3.0	2.8	a	a	a	a
27	a	a	a	a	a	a	a	3.3	3.5	3.4	3.5	3.3	a	a	a	a	2.8	2.6	b	b	a	a	a	a
28	a	a	a	a	a	a	a	a	3.3	3.4	3.3	3.3	3.3	3.3	3.4	3.0	b	a	b	b	a	a	b	a
29	a	a	a	a	b	a	b	b	3.1	3.2	3.5	3.2	3.1	3.2	b	b	3.2	b	b	b	a	a	a	a
30	b	a	b	b	b	a	a	a	2.6	3.5	3.1	3.0	3.1	3.5	3.4	3.3	3.6	3.2	3.2	b	b	b	b	a
31	a	a	a	a	a	b	b	b	a	a	a	a	a	3.2	3.3	3.3	3.3	3.2	b	a	a	a	a	a
Median	(3.1)	*	*	*	*	*	*	*	3.3	3.4	3.5	3.3	3.4	3.4	3.4	3.3	3.3	3.1	3.2	(3.1)	(3.0)	(3.0)	*	*
No.	5								19	20	18	19	20	23	19	19	18	18	14	8	6	5		

32b.

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	a	a	a	a	a	a	a	a	a	a	a	a	4.3	4.4	a	a	a	a	a	a	b	b	b	b
7	a	a	a	b	b	b	b	a	2.2	3.0	3.4	3.8	3.5	3.8	3.6	3.6	3.6	2.8p	b	a	a	a	a	a
8	a	a	a	a	a	a	b	b	2.6p	(3.4)	3.7p	3.8	4.0	4.2p	(4.1)	4.0	4.2p	3.2p	2.0	b	b	b	a	a
9	2.0	1.6	1.6	a	b	a	b	b	2.3	3.3	3.8	3.7	4.2	3.5	4.2	3.8	3.8	3.0	2.1	2.3	b	a	a	a
10	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b	a	a	a
11	a	a	(1.7)	b	b	b	b	b	2.5	3.2	3.4	4.0	4.0	4.2	4.0	4.1	3.9	3.0	1.7	2.1p	2.0	a	a	2.3
12	2.0	a	a	a	a	b	b	b	2.9	3.4p	4.1	4.2p	5.0	4.0p	4.0p	4.5	3.4	2.9p	1.7p	b	b	a	a	a
13	a	a	a	a	a	a	a	a	a	a	a	a	3.5	3.7	3.6	3.9	3.5	2.5p	2.1	1.8	a	(3.0)	a	a
14	a	a	a	a	a	a	a	a	a	a	a	a	a	3.6	3.7	3.8	(2.7)	2.2	2.0	1.9	a	a	a	a
15	2.0	a	a	a	a	a	a	b	2.8	3.0	3.4p	3.5	3.5	4.0	b	4.1	4.5	a	a	a	a	a	a	b
16	a	a	b	a	a	b	b	b	a	a	a	3.5	3.9	4.1	a	(5.0)	3.5	3.3p	2.1	b	b	b	b	b
17	a	2.0	a	a	b	b	a	a	2.8	3.2p	3.7	2.9	4.0	4.1p	4.6p	b	a	2.0	1.8	a	2.5p	2.0	(1.7)	a
18	a	a	a	a	a	a	b	b	2.4	3.6	a	4.0	3.6	4.0	3.5	3.6	4.0	2.5p	a	b	b	b	b	a
19	a	a	a	b	b	b	b	2.1	3.2	3.7	b	3.0p	b	b	a	2.7	a	b	a	b	a	1.6	a	a
20	a	a	a	a	a	a	a	b	2.4p	3.4p	3.6	4.0	4.2	3.8	4.0	4.0	4.7	3.6	b	a	1.8	a	1.7	a
21	a	a	a	a	a	b	a	b	2.5p	3.2p	3.8p	a	4.0p	4.2	4.3p	a	a	3.0	2.0	1.7	(1.8)	a	a	(2.1)
22	a	a	a	a	a	b	b	a	1.7	3.6	4.0	4.3p	4.7p	4.5	4.2	4.8	4.7	3.0	1.7	1.6	2.0	1.7	a	a
23	1.8	a	a	(2.2)	b	a	b	b	2.5	3.3	4.0	4.0	4.2	4.5p	4.5	4.2p	4.5p	3.0	2.5p	2.3	b	2.1p	a	a
24	a	a	a	1.6	1.4	a	b	b	2.8	3.8	4.1	4.2	3.8	4.2	4.2	a	a	a	a	a	2.3	a	a	a
25	2.1	a	b	a	a	a	a	a	2.6	3.1	3.6p	4.0	a	5.0	3.6	4.0	3.0	4.0	2.6	a	a	a	a	a
26	a	a	a	a	a	a	a	a	2.5	3.0	3.0	3.5	a	3.9p	3.7	3.8	2.6	b	1.9	1.8	a	a	a	a
27	a	a	a	a	a	a	a	a	2.3	2.8	3.5	4.0	4.1	a	a	a	a	2.5	3.0	b	b	a	a	a
28	a	a	a	a	a	a	a	a	2.8	3.1	3.3	3.4	3.2	3.8	3.7	3.8	b	a	b	b	a	a	b	a
29	a	a	a	a	b	a	b	b	2.8	3.3	3.6	3.5	4.0	4.3	b	b	3.8	b	b	b	a	a	a	a
30	b	a	b	b	b	a	a	a	2.5	3.4	3.1p	3.8	3.9	4.0	3.3	3.3	3.8	3.1	2.3	b	b	b	b	a
31	a	a	a	a	a	b	b	b	a	a	a	a	a	4.2	4.0	4.4	3.8	3.0	b	a	a	b	b	a
Median	(2.0)	*	*	*	*	*	*	*	2.6	3.4	3.7	3.8	4.0	4.0	4.0	3.9	3.8	3.0	2.0	(1.8)	(2.0)	(2.0)	*	*
No.	5								20	20	18	19	20	23	19	19	18	18	14	8	6	5		

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING JULY 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	c	a	a	a	a	a	a	a	a	a	a	a	260	260	a	a	a	a	a	b	b	b	b	b
7	a	a	a	b	b	b	b	a	240	250	250	300	250	320	270	270	230	240	b	a	a	a	a	a
8	a	a	a	a	a	a	b	b	240	250	220	240	270	240	250	250	220	300	270	b	b	b	a	a
9	320	290	200	a	b	a	b	b	250	240	260	220	290	270	270	240	230	220	250	300	b	a	a	a
10	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	b	b	a	a	a
11	a	a	300	b	b	b	b	b	240	230	230	240	240	240	230	230	200	200	300	370	320	a	a	170
12	170	a	a	a	a	b	b	b	220	240	230	230	230	240	240	210	220	220	280	b	ab	a	a	a
13	a	a	a	a	a	a	a	a	a	a	a	a	a	270	250	220	210	230	220	250	300	a	a	a
14	a	a	a	a	a	a	a	a	a	a	a	a	a	230	270	260	320	(370)	390	390p	a	a	a	a
15	340	a	a	a	a	a	a	b	230	260	220	270	230	270	b	250	240	a	a	a	a	a	a	b
16	a	a	b	a	a	b	b	b	a	a	a	300	290	250	a	230	230	220	270	b	b	b	b	b
17	a	a	a	a	b	b	a	a	270	250	270	300	260	260	260	b	a	300	(370)	a	280	300	b	a
18	a	a	a	a	a	a	b	b	230	240	a	320	300	280	230	270	280	260	a	b	b	b	b	a
19	a	a	a	b	b	b	b	(220)	260	270	b	260	b	b	a	240	a	b	a	b	a	(240)	a	a
20	a	a	a	a	a	a	a	a	240	240	250	280	290	250	280	230	250	260	b	a	(220)	a	270	a
21	a	a	a	a	a	b	a	b	200	220	220	a	260	270	240	a	a	250	250	280	b	a	a	370p
22	a	a	a	a	a	b	b	a	250	270	270	270	270	270	230	230	230	230	270	360	370	350	a	a
23	300	a	a	200	b	a	b	b	240	240	240	230	240	250	240	250	230	240	230	250	b	350	a	a
24	a	a	a	300	300	a	b	b	230	270	250	280	260	300	240	a	a	a	a	a	350	a	a	a
25	320	a	b	a	a	a	a	a	240	250	240	230	a	250p	210	280	250	250	270	a	a	a	a	a
26	a	a	a	a	a	a	a	a	230	200	200	210	a	250	240	290	280	b	350	400	a	a	a	a
27	a	a	a	a	a	a	a	a	240	230	230	250	240	a	a	a	a	280	310	b	b	a	a	a
28	a	a	a	a	a	a	a	a	280	240	250	270	280	250	220	250	b	a	b	b	a	a	b	a
29	a	a	a	a	b	a	b	b	270	260	300	300	320	300	b	b	270	b	b	b	a	a	a	a
30	b	a	b	b	b	a	a	a	440	260	220	350	240	230	270	220	240	250	b	b	b	b	b	a
31	a	a	a	a	a	b	b	b	a	a	a	a	a	270	240	250	230	240	b	a	a	b	b	a
Median	(320)	*	*	*	*	*	*	*	240	240	245	270	260	250	240	250	230	240	270	(330)	(320)	(300)	*	*
No.	5								19	20	18	19	20	23	19	19	18	18	14	8	5	5		

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	3.7	3.7	3.2	2.0	1.7	2.0	2.1	2.2	3.3	g	2.7	2.5	2.5	g	g	g	2.2	4.6	5.0	5.8	e	2.2	e	e
2	2.2	3.7	2.2	2.2	2.0	2.0	2.2	3.4	2.2	2.1	2.7	g	g	g	2.2	g	2.0	e	e	e	3.2	5.7	3.6	4.0
3	4.7	2.9	e	2.5	e	2.1f	3.8	3.6	3.6	2.3	2.7	2.9	g	2.3	g	g	3.0	2.2	e	e	e	3.5	e	5.7h
4	3.6	2.2	e	2.2	2.7	e	2.7	5.1	g	2.2	2.4	2.3	g	2.3	g	2.0	2.0	3.7	3.6	5.6	5.8	5.5	5.7	5.1
5	5.7	8.2	e	e	e	e	e	g	g	g	g	g	2.6	2.2	1.9	2.2	m	2.1	2.2	1.8	b	b	b	b
6	e	e	e	e	e	e	2.2	g	g	2.1	g	2.4	g	g	2.2	e	e	e	2.2	2.0	2.2	7.5	7.2	
7	5.8	2.9	2.7	e	2.2	2.2	2.2	g	g	2.0	g	2.4	2.6	g	g	2.2	g	2.2	1.7	2.2	1.5	2.2	2.1	2.1
8	2.1	2.9	4.0	2.7	1.9	e	e	e	g	2.2	g	3.7	2.6	2.2	g	g	g	2.2	2.2	2.2	e	e	e	e
9	4.7	3.2	4.7	e	e	e	e	e	g	2.2	2.9	3.7	2.6	2.2	2.2	3.0	e	2.2	e	e	e	e	e	e
10	e	e	e	e	e	e	e	e	e	e	e	b	b	b	q	b	b	e	e	e	e	e	e	6.0
11	3.2	2.2	1.8	e	e	e	e	e	e	e	e	e	g	g	g	2.2	g	e	e	e	e	e	e	e
12	5.5	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	5.0
13	5.7	4.1	4.1	2.2	3.3	2.2	2.2	2.2	2.2	g	g	g	e	g	g	g	g	2.1	2.2	e	2.7	2.2	2.2	4.2
14	5.8	2.2	2.1	e	e	e	e	e	e	e	e	2.5	2.6	g	g	2.2	1.9	e	2.2	2.2	2.2	2.2	6.0	4.7
15	3.2	2.2	2.2	2.2	2.0	2.2	6.0	4.1	2.2	2.1	g	g	2.4	g	g	2.6	3.1	3.6	e	e	3.0	e	e	1.8
16	e	5.5	2.2	e	e	e	3.0	5.4	g	g	2.5	g	2.5	5.3	3.8	4.2	2.2	2.3	2.2	e	2.1	5.5	2.1	5.5
17	5.2	e	e	3.5	e	e	e	e	g	g	g	e	e	2.7	2.2	g	2.1	3.7	2.1	e	2.5	2.5	2.5	e
18	2.2	4.0	4.7	1.7	e	e	e	e	g	2.2	g	2.6	2.7	2.3	2.1	2.1	1.9	2.1	e	e	e	e	e	5.7
19	2.2	e	e	e	e	e	e	e	e	e	e	e	e	e	g	2.2	e	e	1.6	e	e	2.2	3.7	6.2
20	7.5	6.0	2.0	5.0	3.0	e	2.2	5.7	2.5	g	2.8	2.8	2.8	5.7	2.8	2.4	2.2	e	1.9	2.1	2.2	3.6	1.9	2.2
21	e	e	3.4	e	e	2.8	e	2.2	2.2	2.7	2.3	2.6	g	6.0	g	2.2	2.2	2.0	e	e	e	5.3	7.0	2.2
22	2.6	e	e	2.1	2.2	e	e	e	g	2.2	g	g	2.3	g	2.4	2.0	e	e	2.9	2.5	e	e	e	e
23	3.0	3.2	2.2	e	e	2.2	2.2	2.5	g	2.3	2.7	2.9	3.7	4.5	5.8	2.9	g	e	e	e	e	e	2.2	8.0
24	2.2	e	2.2	e	3.5	e	2.7	e	g	2.2	2.1	2.9	2.9	e	e	e	e	e	e	e	e	e	e	e
25	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	2.2	e	e	e	2.2	2.8	2.2	2.2	2.8
26	4.2	3.0	4.3	e	e	e	2.8	2.2	g	2.2	g	2.3	2.2	g	g	g	e	2.2	3.7	e	e	e	4.0	2.2
27	e	e	2.1	3.7	e	2.8	2.9	3.5	g	g	g	5.7	2.8	2.9	5.7	1.8	e	3.3	e	3.3	3.5	4.2	5.5	5.1
28	6.0	2.2	e	e	e	2.2	3.3	3.5	3.0	2.1	g	g	g	e	e	e	e	e	e	e	e	e	e	e
29	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
30	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
31																								
Median	3.4	2.9	2.2	2.0	**	**	2.2	2.2	**	2.1	**	2.4	2.5	2.2	**	2.2	**	2.1	1.8	1.8	2.0	2.2	2.2	3.4
No.	26	24	23	21	21	22	22	22	22	22	22	22	22	22	23	24	23	24	22	21	21	21	22	24

30a.

Commonwealth of Australia. Ionospheric Prediction Service of the Commonwealth Observatory.

HOURLY VALUES OF  $h'F_2$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	120	100	100	100	100	120	150	100	100	g	140	100	130	g	g	g	100	120	110	120	e	150	e	e	
2	150	100	100	120	110	110	100	100	110	100	130	g	g	g	100	g	140	e	e	e	120	100	120	130	
3	110	100	e	[150]	e	140	100	110	100	110	100	150	g	160	g	g	150	130	e	e	e	140	e	100	
4	110	100	e	120	100	e	100	100	g	100	150	140	g	150	g	100	120	140	120	110	110	100	120	110	
5	100	120	e	e	e	e	e	g	g	g	g	g	120	100	100	110	m	100	180	100	b	b	b	b	
6	e	e	e	e	e	e	120	g	g	140	g	140	g	g	100	g	e	e	e	130	110	170	130	130	
7	130	120	100	e	110	130	160	g	g	100	g	180	150	g	g	100	g	100	110	100	120	120	150	100	
8	120	110	100	100	120	e	e	e	g	130	g	130	130	100	g	g	140	150	150	e	e	e	e	e	
9	130	130	120		e	e	e	e	g	150	130	130	130	100	120	100	e	110	e	e	e	e	e	e	
10	e	e	e	e	e	e	e	e	e	e	e	b	b	b	q	b	b	e	e	e	e	e	e	e	
11	120	120	170	e	e	e	e	e	e	e	e	e	g	g	g	120	g	e	e	e	e	e	e	e	
12	160	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	100	110	
13	110	110	110	110	110	100	100	140	120	g	g	g	e	g	g	g	g	130	120	e	130	180	150	110	
14	110	160	100	e	e	e	e	e	e	e	e	120	140	g	g	(140)	150	e	110	e	150	150	130	100	
15	110	100	100	100	110	120	120	120	130	100	g	g	130	g	g	110	120	140	e	e	140	e	e	100	
16	e	130	130	e	e	e	130	120	g	g	180	g	140	130	130	130	100	130	130	e	170	e	180	150	
17	130	e	e	140	e	e	e	e	g	g	g	e	e	130	100	g	120	130	140	e	120	120	120	e	
18	180	180	120	170	e	e	e	e	g	130	g	150	150	130	120	120	100	100	e	e	e	e	e	110	
19	110	e	e	e	e	e	e	e	e	e	e	e	e	e	g	120	e	e	100	e	e	140	150	120	
20	120	100	[150]	120	120	e	110	120	120	g	140	130	130	130	130	120	120	e	130	150	150	150	150	130	
21	e	e	130	e	e	100	e	130	120	120	130	130	g	110	g	130	130	130	e	e	e	130	120	130	
22	175	e	e	120	120	e	e	e	e	100	g	g	130	g	120	130	e	e	110	120	e	e	e	e	
23	110	120	150	e	e	120	120	120	g	100	170	170	140	130	130	g	e	e	e	e	e	e	e	130	120
24	120	e	120	e	100	e	100	e	g	110	110	120	120	e	e	e	e	e	e	e	e	e	e	e	
25	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	100	e	e	e	100	120	140	120	130	
26	110	110	100	e	e	e	110	130	g	120	g	120	120	g	g	g	e	130	130	e	e	e	e	130	110
27	e	e	130	120	e	100	110	110	g	g	g	120	130	130	140	130	e	150	e	120	130	130	120	130	
28	110	100	e	e	e	110	140	130	120	100	g	g	g	e	e	e	e	e	e	e	e	e	e	e	
29	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
30	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
31																									
Median	120	110	120	120	110	115	110	120	120	110	135	130	130	130	120	120	120	130	120	120	125	140	130	120	
No.	22	18	17	12	10	10	15	13	8	15	10	15	15	12	11	16	11	15	13	10	12	14	16	19	

30b.



HOURLY VALUES OF  $f_oE$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	2.1	2.0	2.1	2.4	2.1	2.0	2.0h	1.6h	[1.5]							
2								b	1.7	2.0	2.0	2.1	2.1	2.1	1.9	1.7h								
3										1.8	2.0	2.5	2.5	2.2	2.0	1.8h	1.6h							
4								a	b	1.9	2.0	2.1	2.4	2.1	2.0	1.8	b	b						
5								b	b	2.1	2.1	2.1	2.1	2.1	a	2.0	m							
6								b	b	1.8	2.1	2.1	2.1	2.1	1.9	1.7								
7								b	b	1.7	2.1	2.1	2.1	2.1	2.1	1.7p								
8								b	b	1.7	2.1	a	1.8	b	b	b								
9								b	b	1.9	1.8	2.1	2.5	2.1	2.0	[2.0]								
10								c	c	c	c	1.8	2.0	1.7	c	c	c	c						
11								c	c	c	c	c	2.1	2.1	2.1	1.9	1.6							
12								c	c	c	c	c	c	c	c	c	c							
13										2.1	2.1	2.1	2.2	c	2.1	2.1	1.8	2.0						
14										c	c	c	2.0	2.0	2.1	2.0	1.7	b	b					
15										a	1.6	1.9	2.0	2.1	2.0	2.1								
16										b	1.9h	2.1	1.9h	2.0	2.1	[2.0]	2.0	b						
17										b	1.9	2.1	c	c	2.0	1.5	b							
18										b	2.0	2.0	2.0	2.0	2.0	1.9	1.7	b						
19										c	c	c	c	c	c	2.0	1.7	b						
20										a	1.8	2.0	2.1	2.1	2.0	2.0	2.0							
21										b	2.0	2.0	2.0	2.1h	2.1	1.9	2.0							
22										b	[1.7]	1.9	2.0	2.1	2.0	1.8	1.6							
23										b	b	1.7	1.9	2.1	2.4	2.1	c	1.8						
24										b	c	1.9	2.1	2.0	c	c	c							
25										c	c	c	c	c	c	c	(1.8)							
26										b	2.0	2.0	2.1	2.1	2.0	2.1	1.7							
27										b	1.9	2.0	2.0	2.1	2.1	2.1	1.6	b						
28										a	2.0	2.0	2.1	b	c	c	c							
29										c	c	c	c	c	c	c	c							
30										c	c	c	c	c	c	c	c							
31																								
Median									*	1.9	2.0	2.1	2.1	2.1	2.0	1.8	1.6	*						
No.										20	22	22	22	22	21	20	5							

HOURLY VALUES OF  $h' E$  OBSERVED DURING JUNE 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	100	100	100	100	100	100	100	100	[100]	b						
2								b	100	100	100	100	100	100	120	150								
3										100	100	100	110	100	110	110	130							
4								a	b	100	100	100	120	120	120	100	b	b						
5								b	b	100	100	100	100	100	a	100	m							
6								b	b	120	100	110	120	110	100	100								
7								b	b	100	100	120	100	110	140	100								
8								b	b	130	120	a	100	b	b	b								
9										b	150	110	110	100	100	110	100							
10										c	c	c	c	[140]	(120)	c	c	c	c					
11										c	c	c	c	120	110	120	120	[140]						
12										c	c	c	c	c	c	c	c							
13										110	110	100	100	c	100	100	100							
14										c	c	c	100	110	100	140	140	b	b					
15										a	100	100	100	110	120	(110)								
16										b	110	100	100	100	100	c	100	b						
17										b	140	130	c	c	130	100	b							
18										b	100	100	110	100	100	120	120	b						
19										c	c	c	c	c	c	c	c							
20										a	140	130	100	100	100	130	120							
21										b	110	120	110	100	(120)	130								
22										b	100	100	110	110	110	100	120							
23										b	b	100	100	100	100	c	[150]							
24										b	c	100	100	100	c	c	c							
25										c	c	c	c	c	c	c	c							
26										b	100	120	100	120	120	120	120							
27										b	130	120	110	120	120	120	120	b						
28										a	100	100	100	b	c	c	c							
29										c	c	c	c	c	c	c	c							
30										c	c	c	c	c	c	c	c							
31																								
Median									*	100	100	100	100	105	120	110	(130)							
No.										20	22	21	22	22	19	17	5							

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mo/s in 1m55s

157.5°E Mean Time

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	3.2	4.3	4.5	4.7	4.6	3.3	3.1	g	2.6	2.8	2.8	g	g	g	g	g	g	1.9	3.2	3.6	4.3	3.6	5.9				
2	e	3.8	e	e	4.4	3.6	g	g	g	g	g	g	g	g	3.3	g	5.4	[2.2]	2.1	4.0	8.0	5.3	4.2	3.2			
3	3.7	4.3	4.6	5.0	4.8	3.4	2.8	2.7	2.5	g	g	g	g	g	g	g	2.6	g	g	3.7	5.5	e	e	e			
4	5.4	e	e	e	4.5	3.4	g	g	g	g	g	g	g	g	g	g	g	2.5	3.6	1.7	1.7	1.8	4.5	5.0			
5	6.5	6.0	e	e	3.5	1.6	3.2	2.5	g	g	g	g	g	g	g	g	g	g	3.2	2.7	3.3	b	4.5	e			
6	4.7	4.2	3.8	3.8	e	e	2.2	g	2.8	g	3.5	g	3.0	g	g	g	g	g	e	e	2.3	2.2	3.2	4.5			
7	5.2	3.2	4.8	4.3	5.5	3.3	g	g	g	g	g	g	2.8	g	g	g	g	2.2	4.7	3.8	3.7	4.2	3.0	5.0			
8	3.3	3.3	2.3	2.8	e	e	3.1	2.7	g	g	g	g	g	3.2	g	g	2.8	g	g	e	2.1	e	e	2.3	3.5		
9	4.5	3.3	5.0	e	e	3.2	e	g	2.6	g	g	g	3.0	g	g	g	g	g	4.2	4.4	3.2	2.2	4.4	3.3			
10	3.1	3.2	e	3.8	3.1	3.1	3.0	3.1	g	g	g	3.2	g	g	g	g	g	g	2.5	4.1	4.3	3.5	3.0	3.2			
11	3.3	e	4.0	3.0	e	e	e	g	g	g	g	b	g	g	g	g	g	g	5.2	3.3	4.4	6.2	4.1	e			
12	2.8	5.1	4.9	4.9	e	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	[3.0]	3.9	4.3	4.5			
13	3.6	3.2	e	e	e	e	e	g	g	g	g	g	g	g	g	g	g	g	e	e	e	e	e	e			
14	2.1	2.2	e	e	3.9	e	1.9	g	g	g	g	g	g	g	g	g	g	g	8.0	7.5	g	4.3	6.0	7.5	4.2	7.1	e
15	e	e	6.0	5.1	e	3.0	3.2	3.0	g	g	g	g	g	g	g	g	g	g	g	2.1	5.2	5.4	5.0	e	6.6		
16	5.1	e	e	3.2	3.2	2.3	3.2	g	2.9	2.8	g	g	g	g	g	g	g	g	5.3	5.5	5.5	4.5	3.2	4.1	4.3		
17	e	4.0	3.3	3.1	3.0	e	e	g	g	g	3.0	2.8	g	g	g	g	g	g	2.0	e	e	4.0	4.4	3.7	2.5		
18	3.1	6.8	4.0	2.6	e	e	e	e	e	e	e	e	e	e	e	e	e	g	4.3	5.2	5.2	e	4.3	3.1			
19	2.8	e	e	e	3.3	e	e	e	e	e	e	e	e	e	e	e	e	g	4.3	3.9	2.9	e	e	e			
20	4.3	4.5	3.5	2.3	2.8	2.8	g	g	g	g	g	3.1	g	g	g	g	g	g	3.2	4.5	5.9	7.5	e	4.5	e		
21	b	4.8	e	e	e	e	g	g	g	g	g	g	g	g	g	g	g	g	3.6	4.8	4.4	4.2	5.0	4.3	e		
22	e	5.0	e	e	e	e	e	e	g	2.9	2.8	g	g	g	g	g	g	g	e	2.5	3.3	3.5	4.5	3.0	e		
23	4.5	e	3.2	e	e	e	e	e	e	e	e	e	e	e	e	e	e	g	e	e	3.9	4.2	3.3	e	e		
24	4.9	4.8	3.0	2.2	1.7	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	3.9	4.2	3.3	e	e		
25	3.1	3.2	1.9	e	e	2.2	1.5	2.3	g	g	g	g	g	g	g	g	g	g	6.4	5.8	4.9	4.4	4.5	4.5	4.0		
26	5.0	6.0	e	e	e	3.4	2.2	2.8	g	g	g	3.2	g	g	g	g	g	g	2.7	e	e	3.2	3.2	7.2			
27	3.5	2.1	3.0	2.7	e	e	g	g	g	g	g	g	g	g	g	g	g	g	2.2	e	e	2.1	e	2.8	2.2	2.1	
28	4.0	2.3	4.3	4.2	4.6	2.8	g	g	g	g	g	g	g	g	g	g	g	5.0	7.0	5.1	3.7	8.0	4.5	5.7	5.3		
29	4.0	e	3.7	e	e	e	g	g	2.8	2.7	3.0	g	g	3.1	g	g	g	g	4.5	4.2	4.2	8.2	4.0	e	e		
30	6.0	6.0	4.8	4.5	e	e	g	g	g	g	g	g	g	g	g	g	g	4.1	5.6	4.4	7.3	8.0	e	3.9	5.4		
31																											
Median	3.6	3.3	3.1	2.6	**	**	**	**	**	**	**	**	**	**	**	**	**	**	3.4	3.7	4.1	3.5	4.0	3.2	4.5		
No.	29	30	30	29	29	29	29	29	29	29	29	28	29	29	30	30	30	30	30	30	30	29	30	30	30		

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING SEPTEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mo/s in 1m55s

157.5°E Mean Time

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	100	100	110	100	100	e	140	130	130	130	g	g	g	g	g	g	160	130	120	110	110	120		
2	e	130	e	e	100	110	g	g	g	g	g	g	g	g	130	g	120	150	150	110	120	110	100	100		
3	120	100	100	100	100	100	120	110	120	g	g	g	g	g	g	g	g	g	120	g	g	130	120	e	e	
4	100	e	e	e	120	130	g	g	g	g	g	g	g	g	g	g	g	g	130	120	140	130	150	120	120	
5	120	110	e	e	120	100	100	110	g	g	g	g	g	g	g	g	g	g	g	120	140	130	b	100	e	
6	100	110	120	100	e	e	g	120	g	160	g	140	g	130	g	g	g	g	e	e	100	150	150	130	e	
7	100	100	120	130	130	130	g	g	g	g	g	g	120	g	g	g	g	g	130	110	130	130	120	120	110	
8	100	100	110	130	e	e	100	110	g	g	g	g	130	g	g	140	g	g	e	140	e	e	150	110	e	
9	110	110	100	e	e	100	e	g	130	g	g	110	g	g	g	g	g	g	120	120	120	160	100	100	100	
10	100	110	e	110	120	110	120	120	g	g	g	120	g	g	g	g	g	g	150	120	120	120	120	120	120	
11	120	e	120	110	e	e	e	g	g	g	g	b	g	g	g	g	g	g	e	b	140	130	130	e	e	
12	100	120	120	120	e	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	e	180	150	130	130	
13	130	130	e	e	e	e	e	g	g	g	g	g	g	g	g	g	g	g	e	e	e	180	150	130	130	
14	140	130	e	e	100	e	130	g	g	g	g	g	g	g	g	g	g	g	120	120	g	120	120	110	e	
15	e	e	100	100	e	120	130	130	g	g	g	g	g	g	g	g	g	g	g	130	130	110	110	e	120	
16	120	e	e	120	130	130	120	g	150	150	g	g	g	g	g	g	g	g	120	120	120	130	130	120	100	
17	e	110	130	110	130	e	e	g	g	g	g	130	140	g	g	g	g	g	150	e	e	150	150	120	150	
18	170	110	120	130	e	e	g	g	g	g	g	g	g	g	g	g	g	g	120	130	130	e	100	120		
19	140	e	e	e	110	e	e	e	g	g	g	g	g	g	g	g	g	g	140	140	150	e	e	e	e	
20	100	100	100	100	120	110	g	g	g	g	g	150	g	g	g	g	g	g	110	100	110	110	e	110	e	
21	b	110	e	e	e	e	g	g	g	g	g	g	g	g	g	g	g	g	120	110	110	100	120	130	e	
22	e	100	e	e	e	e	e	e	e	150	160	g	g	g	g	g	g	g	e	e	180	130	e	120	100	
23	100	e	110	e	e	e	e	e	e	e	e	e	e	e	e	e	e	g	g	g	e	120	120	110	110	110
24	100	100	100	130	140	e	g	g	g	g	g	g	g	g	g	g	g	g	e	e	110	130	120	e	e	
25	150	130	140	e	e	130	130	140	g	g	g	g	g	g	g	g	g	g	120	120	120	110	120	120	100	
26	100	120	e	e	e	110	130	130	g	g	g	140	g	g	g	g	g	g	g	180	e	e	130	150	110	
27	110	130	120	100	e	e	g	g	g	g	g	g	g	g	g	g	g	g	160	e	130	e	130	170	140	
28	120	100	120	120	100	120	g	g	g	g	g	g	120	g	g	g	g	g	130	120	120	130	100	110	120	110
29	110	e	130	e	e	e	g	g	140	130	130	g	g	130	g	g	g	g	g	130	130	130	110	110	e	
30	110	120	130	130	e	e	g	g	g	g	g	g	g	g	g	g	g	g	130	120	130	130	110	e	140	130
31																										
Median	110	110	120	110	120	110	120	120	140	150	*	140	*	*	*	*	*	120	120	120	130	120	125	120	115	4.5
No.	25	23	19	17	14	14	10	8	5	5		7														

HOURLY VALUES OF  $f_o F_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	a	a	a	1.9	1.7	b	b	b	b	3.8	3.8	[4.8]	#	c	c	c	c	b	a	a	a	b	a	
2	a	a	a	a	b	b	b	3.6	3.5	b	3.6	4.0	3.8	3.7	3.8	4.2	b	4.1	3.7f	3.4f	2.6f	2.1	[1.7]	#
3	a	a	b	b	b	b	3.4	3.6f	4.0	b	4.5	4.5	b	b	b	5.0	a	3.3f	2.9f	2.4	2.4	c	c	c
4	3.0	b	b	b	a	b	3.3	b	(3.8)	b	b	b	b	b	(8.0)	5.0	4.0	4.3	a	3.7f	a	a	a	a
5	a	b	b	b	a	2.5	3.1	3.5	3.7	3.8	(4.0)	4.0	4.0	4.0	4.4	5.0	5.5	5.1	4.5	4.2	2.9f	2.3f	2.4	(1.8)
6	a	a	(1.8)	a	b	2.5	3.3	3.8	(3.7)	3.8	b	4.3	b	4.5	4.8	(4.9)	4.4	(4.8)	a	a	b	b	b	a
7	a	b	a	b	b	b	3.3	3.8	3.7	3.8	3.8	c	(4.0)	3.8	3.9	3.8	4.8	4.8	4.3	4.1f	2.4f	2.6	a	a
8	a	b	b	b	b	b	(3.3)	3.7	3.7	4.1	4.4	c	4.5	#	4.4	4.5	4.5	4.6	3.5f	2.7f	3.0f	a	2.1	a
9	b	a	a	a	2.8	2.5	3.4	3.7	4.0	b	4.4	4.2	4.6	4.6	4.6	5.3	4.7	[3.7]	3.9f	3.2	2.7f	2.0f	b	bs
10	c	b	b	b	b	[2.5]	3.5	3.7	4.2	4.2	4.7	4.8	4.8	4.7	5.0	4.9	5.0	5.1	4.9f	4.7f	3.8f	3.0f	2.6f	b
11	e	2.8f	2.6	b	b	2.7	3.7	4.0	4.3	4.7	5.0	4.3	5.2	5.2	5.6	5.6	4.6	4.9	4.6	4.2f	2.9f	2.8f	2.8	a
12	2.9	2.4	2.2	2.3	(2.2)	2.8	3.8	4.3	4.7	5.2	5.5	5.7	5.8	5.9	5.7	5.6	5.5	5.6	5.4	5.5	5.0	4.1	4.0	3.1
13	2.0p	1.9	b	b	b	2.8	3.8	4.1	4.7	5.4	5.3	5.0	5.6	c	5.8	5.5	5.5	5.4	5.0	c	c	3.0	(2.4)	e
14	c	c	c	c	c	c	c	c	c	c	5.3	5.2	(5.2)	(5.2)	5.0	c	5.1	5.0	5.0	5.0	5.1	b	3.1f	a
15	a	b	2.8f	2.7f	2.3f	2.7	3.7f	4.0	4.0	[4.5]	4.5	4.7	5.0	b	b	5.5	5.3	5.3	5.2	5.0	5.0	a	a	a
16	3.6	3.5	3.0	2.5	[1.9]	2.8	3.4	[4.0]	4.3	#	4.6	4.7	4.9	5.0	5.0	4.5	5.0	5.0	4.8	4.9	4.2	3.6f	3.6f	3.0
17	b	b	b	a	2.5f	3.0	3.8	4.3	4.6	4.7	4.8	5.6	4.8	5.4	5.2	5.4	4.6	a	a	a	a	a	a	a
18	a	2.5	2.0	b	1.8	3.2	4.0	4.1	4.2	4.3	4.9	5.0	b	b	6.0	a	b	a	a	b	a	a	b	b
19	b	b	b	b	b	b	3.5	b	4.0	c	c	b	b	b	c	c	c	4.9	b	4.0f	a	a	b	b
20	a	a	b	a	b	b	3.5	3.9	4.0	4.2	4.0	4.2	4.4	c	4.4	#	4.7	4.5	b	a	b	b	b	b
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c	4.5	4.4	4.5	4.7	4.6	4.0f	3.7	a	a	a
22	a	3.0	(2.3)	(2.0)	2.1	3.0	3.7	4.0	4.3	4.5	4.3	4.7	5.0	4.3	4.7	4.8	4.7	5.0	4.5	c	c	c	c	4.0
23	a	3.3	2.2f	2.2	b	b	b	3.7	3.7	3.7	c	b	b	b	b	4.5	4.0	3.8	3.9	a	c	a	a	a
24	b	a	a	a	b	c	c	c	c	c	c	c	c	c	5.6	a	a	a	b	a	a	a	b	b
25	a	b	a	a	b	b	a	b	b	b	4.0	3.8	3.8	3.8	4.3	5.0	a	a	a	a	a	a	a	a
26	a	(2.5)	b	a	a	2.9	3.4	g	g	g	g	g	4.2	4.4	4.3	4.1	4.3	4.5	4.3	a	3.8	3.7	2.7	a
27	a	a	a	a	a	3.5	b	3.8	4.0	3.8	4.0	4.3	4.5	4.5	c	4.6	4.3	4.8	4.7	4.2	a	b	b	a
28	a	a	a	3.3	2.7	3.2	4.0	4.4	4.1	g	4.4	4.4	4.3	4.4	4.7	4.5	4.6	4.7	4.5	3.6f	3.3	2.6	2.7f	2.4f
29	a	2.0	2.1	b	3.3	3.6	g	4.2	4.3	4.5	4.4	4.4	4.7	4.6	4.7	4.7	4.6	4.7	4.6	4.1	4.0	3.7	2.8	3.1f
30	f	2.5	2.5	2.5	2.1	3.3	3.2	3.9	4.4	4.7	4.5	5.2	5.2	5.3	#	#	5.7	c	c	3.7	3.5f	2.7f	2.0	a
31	a	b	3.2	3.2	2.7f	3.2	g	g	b	b	4.2	4.5	4.5	4.5	4.5	4.4	4.1	4.3	4.5f	4.5	a	a	3.5f	3.2
Median	*	2.5	2.3	(2.5)	2.2	2.8	3.5	3.8	4.0	4.2	4.4	4.5	4.6	4.5	4.7	4.9	4.6	4.8	4.6	4.1	3.6	2.9	2.7	(3.1)
No.		10	11	9	12	18	23	24	25	20	25	24	22	19	24	23	24	25	22	22	18	14	15	7

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HOURLY VALUES OF  $h^1 F_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	320	280	b	b	b	b	230	c	370	#	c	c	c	c	b	a	a	a	a	b	a	
2	a	a	a	a	b	b	b	280	250	b	230	220	220	230	210	420	b	290	250	250	280	270	c	#	
3	a	a	b	b	b	b	250	250	230	b	440	420	b	b	b	280	a	350	300	320	320	c	c	c	
4	390	b	b	b	a	b	290	b	b	b	b	b	b	b	250	320	330	290	a	350	a	a	a	a	
5	a	b	b	b	a	290	300	240	260	240	(270)	230	240	(330)	350	330	270	270	270	250	280	320	280	(320)	
6	a	a	a	a	b	a	250	250	(270)	(230)	b	480	b	440	350	370	350	a	a	a	b	b	b	a	
7	a	b	a	b	b	b	280	370	330	270	240	c	(400)	250	280	320	360	290	240	250	290	300	a	a	
8	a	b	b	b	b	b	(280)	320	290	500	460	c	490	#	420	350	330	340	280	270	270	a	300	a	
9	b	a	a	a	340	250	260	350	400	b	470	440	370	370	400	350	340	250	280	250	250	350	(470)	bs	
10	b	b	b	b	b	240	260	240	[290]	430	380	380	440	400	340	320	300	270	250	240	230	250	350	(390)	
11	360	350	370	b	b	250	240	340	360	350	330	330	340	340	300	280	320	290	270	280	300	270	320	a	
12	340	290	300	300	(300)	260	250	320	320	330	320	300	290	300	270	290	270	270	240	230	240	250	250	280	
13	280	280	b	b	b	250	250	250	290	370	300	350	320	c	280	290	280	270	240	c	c	300	300	c	
14	c	c	c	c	c	c	c	c	c	c	320	320	300	330	330	(320)	320	280	250	250	250	b	340	a	
15	a	b	300	250	290	250	270	250	250	340	350	350	350	b	b	320	290	280	280	250	250	a	a	a	
16	330	260	270	280	270	250	240	330	370	#	380	380	380	360	330	330	310	290	270	250	230	250	250	300	
17	b	b	b	a	340	300	260	320	320	320	420	370	350	320	340	270	250	250	270	250	280	350	a	a	
18	a	310	300	b	280	230	250	300	410	520	370	370	b	b	370	a	b	a	a	b	a	a	b	b	
19	b	b	b	b	b	b	270	b	250	c	c	b	b	b	c	c	c	300	b	270	a	a	b	b	
20	a	a	b	a	b	b	320	420	(570)	470	270	580	520	c	470	#	330	320	b	a	b	b	b	b	
21	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	380	400	350	310	290	260	270	a	a	a
22	a	340	a	a	300	260	500	400	350	370	460	370	330	370	350	350	330	290	310	c	c	c	c	300	
23	a	330	290	280	b	b	b	270	280	300	c	b	b	b	b	420	370	270	300	a	c	a	a	a	
24	b	a	a	a	b	c	c	c	c	c	c	c	c	c	c	430	a	a	a	b	a	a	a	b	b
25	a	b	a	a	b	b	a	b	b	b	260	240	250	240	450	400	a	a	a	a	a	a	a	a	a
26	a	a	b	a	a	280	260	g	g	g	g	g	570	540	540	500	420	360	340	a	370	350	390	a	
27	a	a	a	a	a	330	b	250	450	570	490	450	430	420	c	350	340	290	270	270	a	b	b	a	
28	a	a	a	280	300	280	(300)	280	480	g	480	520	420	390	380	320	300	280	250	250	270	300	300	320	
29	a	330	330	b	260	270	g	450	520	520	430	420	430	420	450	350	330	300	260	240	240	240	320	280	
30	250	(300)	240	320	270	190	230	340	330	420	350	400	380	350	#	#	290	c	c	260	260	280	(340)	a	
31	a	b	300	310	250	280	g	g	b	b	460	420	490	450	400	380	460	380	310	250	a	a	300	300	
Median	(335)	(310)	(300)	(290)	285	260	260	320	325	370	375	375	375	360	350	335	330	290	270	250	265	280	320		

HOURLY VALUES OF  $f_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

$157.5^{\circ}$  Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	280	b	b	b	b	u	u	u	a	a	a	a	a	b	a	a	a	a	b	a	
2	a	a	a	a	b	b	b	u	u	b	u	u	u	u	u	u	b	u	270	290	280	300	o	u	
3	a	a	b	b	b	b	270	250	250	b	u	u	b	b	b	280	a	350	300	320	o	o	o	o	
4	390	b	b	b	a	b	300	b	b	b	b	b	b	b	290	u	u	310	a	350	a	a	a	a	
5	a	b	b	b	a	300	u	250	u	u	u	u	u	u	u	280	280	300	290	320	330	290	o		
6	a	a	a	a	b	a	270	260	u	u	b	u	u	u	u	u	a	a	a	a	b	b	b	a	
7	a	b	a	a	b	b	300	u	u	u	u	o	u	u	u	u	u	290	300	290	310	330	a	a	
8	a	b	b	b	b	b	280	u	u	u	u	o	u	u	u	u	u	340	280	270	300	a	310	a	
9	b	a	a	a	a	270	290	u	u	b	u	u	u	u	u	u	u	340	320	280	270	350	b	bu	
10	b	b	b	b	b	250	270	270	u	u	u	u	u	u	u	u	310	280	270	290	300	320	370	b	
11	o	350	370	b	b	270	260	u	u	u	u	u	u	u	u	290	320	320	290	330	340	300	o	a	
12	340	310	330	340	(340)	280	280	u	u	u	u	u	u	u	u	290	270	280	250	270	270	280	300	340	
13	290	300	b	b	b	280	270	270	u	u	u	u	u	o	u	290	280	280	270	o	o	350	o	o	
14	o	o	o	o	o	o	o	o	o	o	u	u	u	u	u	o	320	290	290	270	270	b	350	a	
15	a	b	340	270	300	270	280	290	290	u	u	u	u	b	b	u	u	280	290	290	300	a	a	a	
16	330	300	300	330	300	280	270	u	u	u	u	u	u	u	u	u	u	300	300	290	270	270	340	350	
17	b	b	b	a	o	280	u	u	u	u	u	u	u	u	u	u	u	280	300	290	320	o	a	a	
18	a	350	320	b	b	290	250	270	u	u	u	u	b	b	u	a	b	a	a	b	a	a	b	b	
19	b	b	b	b	b	b	280	b	270	o	o	b	b	b	o	o	o	u	b	o	a	a	b	b	
20	a	a	b	a	b	b	u	u	u	u	u	u	u	o	u	u	u	u	b	a	b	b	b	b	
21	o	o	o	o	o	o	o	o	o	o	o	o	o	o	u	u	u	u	u	300	280	320	a	a	a
22	a	o	a	a	330	290	u	u	u	u	u	u	u	u	u	u	u	300	360	o	o	o	o	370	
23	a	350	300	300	b	b	o	u	u	u	o	b	b	b	b	u	u	320	320	a	o	a	a	a	
24	b	a	a	a	b	o	o	o	o	o	o	o	o	o	u	a	a	a	b	a	a	a	b	b	
25	a	b	a	a	b	b	a	b	b	b	u	u	u	u	u	u	a	a	a	a	a	a	a	a	
26	a	a	b	a	a	300	270	g	g	g	g	g	u	u	u	u	u	u	340	a	390	370	a	a	
27	a	a	a	a	a	330	b	260	u	u	u	u	u	u	o	u	u	310	280	280	a	b	b	a	
28	a	a	a	a	300	310	280	u	u	u	g	u	u	u	u	u	300	310	270	300	290	300	340	340	
29	a	330	330	b	280	o	g	u	u	u	u	u	u	u	u	u	300	290	290	280	290	350	300		
30	260	o	300	350	280	250	250	u	u	u	u	u	u	u	u	u	290	o	o	280	300	290	350	a	
31	a	b	(330)	320	250	290	g	g	b	b	u	o	u	u	u	u	u	320	280	a	a	330	330		
Median	(330)	(330)	(330)	(320)	295	280	280	(270)	*	*	*	*	*	*	*	*	(295)	300	290	290	300	310	340	(340)	
No.	5	7	9	7	10	15	19	9									8	17	22	21	17	14	10	6	

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HOURLY VALUES OF  $(M3000)f_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND

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

$157.5^{\circ}$  Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	2.9	3.2	b	b	b	b	3.1	3.3	[2.7]	u	o	o	o	o	b	a	a	a	b	a		
2	a	a	a	a	b	b	b	3.2	3.6	b	3.9	3.6	3.8	3.7	3.8	2.8	b	3.3	3.3	3.0	3.1	3.1	o	u	
3	a	a	b	b	b	b	3.3	3.3	3.3	b	2.7	2.8	b	b	b	3.3	a	2.9	3.1	3.0	2.7	o	o	o	
4	2.7	b	b	b	a	b	3.2	b	b	b	b	b	b	b	3.2	3.1	3.1	3.1	a	2.9	a	a	a	a	
5	a	b	b	b	a	3.2	3.2	3.4	3.4	3.4	3.4	(3.7)	3.5	(3.3)	3.2	3.0	3.2	3.2	3.1	3.0	3.1	3.0	3.2	3.2	
6	a	a	a	a	b	3.2	3.3	3.3	o	3.8	b	2.5	b	2.6	3.0	2.9	2.7	2.8	(2.8)	a	a	b	b	a	
7	a	b	a	b	b	b	3.1	2.9	3.3	3.5	3.5	o	o	3.7	3.4	3.3	2.8	3.0	2.9	3.1	3.0	3.0	a	a	
8	a	b	b	b	b	b	3.2	3.1	3.3	(2.6)	2.7	o	2.5	u	2.7	3.0	3.0	2.8	3.1	3.0	3.0	a	3.0	a	
9	b	a	a	a	3.1	3.3	3.2	3.0	2.8	b	2.6	2.7	3.0	3.1	2.9	2.9	2.9	[2.8]	2.9	3.1	3.1	3.1	b	bu	
10	b	b	b	b	b	3.6	3.4	3.2	2.8	2.8	2.9	2.9	2.6	2.8	2.9	3.1	3.0	3.4	3.1	3.1	3.1	2.9	2.8	3.0	a
11	o	2.9	2.8	b	b	3.2	3.3	3.1	3.1	3.1	3.1	3.0	3.1	2.9	3.3	3.1	3.1	2.9	3.1	2.7	2.8	3.2	3.0	a	
12	2.9	3.1	2.9	2.9	3.0	3.1	3.2	3.1	2.9	3.1	3.1	3.2	3.3	3.2	3.3	3.1	3.2	3.2	3.1	3.1	3.2	3.1	2.8	2.8	
13	3.3	3.1	b	b	b	3.2	3.2	3.1	3.3	2.9	2.9	3.1	3.2	o	3.3	3.2	3.2	3.2	3.2	o	o	3.1	2.9	o	
14	o	o	o	o	o	o	o	o	o	o	3.2	3.1	o	(3.1)	3.1	o	2.9	3.1	3.1	3.2	3.2	b	3.0	a	
15	a	b	2.8	3.1	2.8	3.2	3.3	3.2	3.1	3.1	2.9	3.1	3.1	b	b	3.1	3.1	3.2	3.1	3.1	3.1	a	a	a	
16	3.0	3.0	2.9	2.8	3.3	3.1	3.2	[3.3]	2.9	u	3.0	2.9	2.9	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.1	2.9	3.0	2.9
17	b	b	b	a	3.0	3.2	3.2	3.1	3.2	3.2	2.7	2.9	3.1	3.2	3.1	3.1	3.4	u	3.3	2.9	3.1	2.9	2.9	a	
18	a	2.7	3.1	b	3.2	3.3	3.2	3.1	2.9	2.6	2.8	2.9	b	b	2.8	a	b	a	a	b	a	a	b	b	
19	b	b	b	b	b	b	3.3	b	3.2	o	o	b	b	b	o	o	o	2.8	b	2.9	a	a	b	b	
20	a	a	b	a	b	b	3.1	2.8	(2.5)	2.6	3.6	2.4	2.5	o	2.6	u	3.0	2.9	b	a	b	b	b	b	
21	o	o	o	o	o	o	o	o	o	o	o	o	o	o	2.9	2.9	3.0	3.3	3.0	3.1	3.0	a	a	a	
22	a	3.0	2.9	2.9	2.9	3.3	2.7	2.7	3.1	3.0	2.7	2.9	3.1	2.9	3.1	3.0	3.1	3.1	3.1	3.1	o	o	o	2.8	
23	a	2.9	3.2	3.1	b	b	3.4	3.3	[3.4]	o	b	b	b	b	o	o	2.7	3.0	3.0	3.0	a	o	a	a	
24	b	a	a	a	b	o	o	o	o	o	o	o	o	o	2.8	a	a	a	b	a	a	a	b	b	
25	a	b	a	a	b	b	a	b	b	b	3.6	3.8	3.8	3.7	2.6	2.7	a	a	a	a	a	a	a	a	
26	a	a	b	a	a	3.2	3.2	g	g	g	g	g	g	2.9	2.4	2.4	2.5	2.6	2.9	2.8	a	2.8	2.8	2.8	a
27	a	a	a	a	a	2.9	b	3.3	2.8	2.5	2.6	2.7	2.8	2.8	o	3.0	3.0	2.9	3.1	3.1	a	b	b	a	
28	a	a	a	3.1	3.0	3.4	3.1	3.3	2.7	g	2.6	2.5	2.8	2.9	3.0	3.1	3.0	3.0	3.1	2.9	3.2	2.8	2.7		
29	a	2.9	2.9	b	3.2	3.4	g	2.6	2.4	2.5	2.7	2.9	2.7	2.8	2.6	3.1	3.0	3.1	3.1	3.2	3.2	3.1	2.6	2.9	
30	2.8	3.0	2.9	2.6	3.2	3.4	3.4	3.0	3.3	2.7	2.9	2.8	2.8	2.8	u	u	3.3	o	o	3.1	3.1	3.1	3.3	a	
31	a	b	2.8	3.1	3.3	3.2	g	g	b	b	2.7	2.7	2.9	2.7	2.8	2.9	2.6	2.7	2.9	3.1	a	a	2.8	2.9	
Median	(2.9)	(3.0)	2.9	(2.9)	3.2	3.2	3.2	3.1	3.1	3.0	2.9	2.9	3.0	2.9	3.0	3.1	3.0	3.0	3.1	3.1	3.1	3.1	2.9	(2.9)	
No.	5	9	10	9	12	18	23	24	23	20	25	24	20	19	24	23	24	25	23	22	18	14	14	7	

47b

HOURLY VALUES OF  $f_o F_1$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	3.0	b	b	s	e	e	e	e	e	b					
2								2.8	3.0	b	3.0	3.0	3.0	2.7	3.1	3.8	b	3.1	q					
3							(2.2)	2.7	2.7	b	3.9	b	b	b	b	e	e	e	a					
4						b	b	b	b	b	b	b	b	b	b	(3.8)	3.5	a	a					
5						a	a	2.5	3.0	(3.3)	3.5	(3.3)	3.3	3.8	3.8	3.8	3.6	3.1	(2.3)					
6						q	1	1	1	(3.1)	b	3.9	b	4.0	4.0	3.8	b	q						
7							q	3.3	3.5	(3.5)	3.4	3.8	3.7	3.5	3.5	3.5	3.5	3.2	q					
8						b	b	3.2	3.3	3.8	3.9	e	4.0	s	4.0	3.8	3.5	3.2	q					
9							q	3.4	3.5	(3.5)	3.8	3.7	3.9	4.0	4.0	4.1	3.5	q						
10							[2.7]	q	[3.5]	3.8	4.0	4.1	4.1	4.0	3.9	4.0	3.6	3.5	q					
11								q	3.6	3.8	4.0	4.1	3.4	s	4.1	4.0	3.9	3.4	3.1	2.4				
12								q	3.6	3.6	4.1	4.2	4.2	4.2	4.2	4.0	3.9	3.7	3.2	2.2				
13								q	3.8	4.0	4.1	4.2	4.2	e	4.1	4.0	3.7	3.1	q					
14								e	e	e	4.2	4.2	4.1	4.2	4.0	3.8	3.5	3.2	(2.5)	2.1	2.2			
15									[4.0]	3.8	4.0	4.1	b	b	b	4.1	4.0	3.7	3.4	2.5	q			
16							2.4	3.5	3.8	s	4.0	4.1	4.1	4.1	4.0	3.7	3.7	3.4	2.5	q				
17							q	3.5	4.0	4.1	4.2	4.2	4.1	4.1	4.0	3.8	3.7	q						
18							3.0	3.5	3.8	4.0	4.1	4.0	b	b	4.0	a	b							
19									q	3.8	3.8	b	b	b	e	e	e	3.8	b					
20							3.0	3.0	3.7	3.8	(3.5)	4.0	4.0	e	3.8	s	3.7	3.5	b	a				
21								e	e	e	e	e	e	e	4.0	3.9	3.7	3.5	2.9	q				
22						q	[3.0]	3.7	3.7	4.0	4.0	4.0	4.1	3.8	4.0	4.0	3.8	3.5	3.5					
23							b	[3.1]	a	3.5	e	b	3.8	3.9	4.0	3.7	3.6	3.6	q					
24							e	e	e	e	e	e	e	e	[4.9]	a	a	a	b	a				
25							a	b	b	b	(3.2)	a	3.5	3.2	b	a	a	a	a	a	a			
26							q	3.6	3.8	3.9	3.7	3.9	3.9	4.1	4.1	3.8	3.7	3.4	2.9	a				
27								q	3.8	3.7	3.7	4.0	3.9	4.0	e	3.8	3.3	3.1	(2.5)					
28							(3.3)	3.6	3.8	3.8	4.0	4.1	3.9	3.8	3.8	3.6	3.2	2.8	q					
29						3.0	3.8	4.0	3.9	4.1	4.0	4.0	4.0	4.1	4.1	4.1	3.7	3.5	3.0					
30						q	(2.5)	3.4	3.9	4.0	3.7	4.7	4.0	4.0	s	s	3.8	e	e	(2.0)				
31						2.3	3.5	3.5	b	b	4.0	4.0	4.0	4.0	4.0	3.8	3.7	3.4	3.0	q				
Median						*	3.0	3.5	3.8	3.8	3.9	4.0	4.0	4.0	4.0	3.8	3.7	3.4	2.7	*	*			
No.							10	19	20	22	25	22	22	20	23	23	23	21	12					

HOURLY VALUES OF  $h^p F_1$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	150	b	b	s	e	e	e	e	e	b					
2								200	200	b	170	e	e	e	200	230	b	240	q					
3								240	210	190	b	180	b	b	b	e	e	e	a					
4						b	b	b	b	b	b	b	b	b	b	b	240	a	a					
5						a	a	210	230	(220)	220	200	220	220	210	220	240	250	(240)					
6						q	(240)	230	200	200	b	220	b	210	200	200	b	q						
7							q	270	240	230	200	220	210	190	220	220	240	260	q					
8						b	b	250	230	220	230	e	220	s	230	220	230	260	q					
9							q	240	220	b	210	220	200	200	200	230	230	q						
10							240	q	230	220	200	180	200	220	210	230	230	240	q					
11							q	210	200	210	210	210	s	220	220	220	220	240	260					
12							q	240	200	220	230	220	200	200	200	200	210	240	230					
13								q	220	220	200	220	220	e	200	210	210	240	q					
14								e	e	e	220	200	180	220	200	220	220	240	240	220				
15								q	240	220	230	220	230	220	b	b	200	220	250	q				
16							230	240	230	230	220	230	200	200	200	200	200	230	240	q				
17							q	230	230	230	230	220	200	[250]	200	220	200	q						
18							230	220	210	230	230	200	b	b	220	a								
19									q	220	230	b	b	b	e	e	e	240	b					
20							(220)	230	230	230	230	230	220	e	220	s	230	250	b	a				
21								e	e	e	e	e	e	e	220	220	240	240	230	q				
22						q	230	220	220	200	240	220	200	200	220	220	220	230	250					
23							b	a	a	230	e	b	230	240	220	240	250	250	q					
24							e	e	e	e	e	e	e	e	a	a	a	a	b	a				
25							a	b	b	b	a	a	220	210	b	a	a	a	a	a	a			
26							q	230	240	240	220	220	220	210	200	200	220	240	270	a				
27							q	230	230	230	210	200	230	e	240	230	240	250						
28							(260)	250	260	230	220	230	230	190	200	200	240	230	q					
29						230	220	230	210	210	220	200	200	190	200	240	230	230	240					
30						q	(220)	260	230	210	200	230	200	220	s	s	(270)	e	e	250				
31						230	240	230	b	b	200	200	200	220	220	220	230	240	230	q				
Median						*	230	230	230	220	220	220	220	210	200	220	230	240	240	*	*			
No.							11	19	21	22	24	21	21	19	22	22	23	21	12					

HOURLY VALUES OF  $f_o F_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						b	b	b	b	2.6	b	b	s	e	e	e	e	b						
2						b	b	b	b	b	b	b	(2.8)	2.7	2.7	b	b							
3						b	2.0	2.4	2.5	b	3.0	b	b	b	b	e	e	e	b					
4						b	b	b	b	b	b	b	b	b	b	2.7	2.5							
5						e	b	2.3	2.7	2.9	3.0	3.0	3.0	3.0	2.9	2.7	a	a	b					
6						a	2.0	2.5	b	b	b	3.1	b	3.0	2.8	2.4	b	b	b					
7						b	2.5	2.8	2.8	3.0	3.2	3.0	3.0	2.8	2.6	2.5	(2.2)	b						
8						b	b	(2.5)	2.5	2.7	3.0	e	3.0	s	2.7	2.7	2.5	(2.3)	b					
9					[2.3]	b	2.0	2.4	2.8	3.0	2.9	3.0	3.0	3.1	2.9	2.7	2.5	b						
10							2.4	b	2.7	b	3.0	3.0	3.2	3.0	3.0	2.8	2.5	(2.4)	(1.9)					
11						b	b	(2.8)	2.7	3.1	3.1	3.0	s	3.1	3.0	2.8	2.7	2.8	[1.8]					
12						b	2.1	2.5	2.6	2.9	3.2	3.0	3.1	3.0	3.1	2.9	2.7	2.1	1.8					
13						b	2.0	2.4	2.7	2.8	3.1	3.2	3.1	e	3.0	2.7	2.5	2.2	1.8	e	e			
14							e	e	e	e	3.0	s	3.0	3.0	3.0	2.8	2.5	2.2	1.9					
15						b	2.1	2.3	2.5	b	2.8	3.0	3.0	b	b	3.0	2.9	2.5	2.3	b				
16							1.9	2.3	2.7	2.8	3.0	2.9	2.8	3.0	3.0	2.5	2.5	2.4	1.8					
17						b	2.6	2.8	3.0	3.1	3.5	3.2	3.0	3.0	2.8	2.4	2.4	q						
18						b	1.8	2.4	2.8	3.0	3.0	3.0	b	b	2.8	(2.7)	b	b	b					
19								e	e	3.0	3.0	b	b	b	e	e	e	2.5	b					
20						b	b	2.7	3.0	(3.0)	(3.0)	3.0	3.1	e	b	s	b	2.4	b	b	b			
21							e	e	e	e	e	e	e	e	3.0	2.8	2.7	2.4	1.8					
22							2.3	2.5	2.6	3.0	3.3	3.0	3.3	2.9	3.0	2.9	2.5	2.4	2.4					
23						b	b	b	b	3.0	e	b	3.0	3.0	3.0	3.0	2.7	2.2	2.0					
24							e	e	e	e	e	e	e	e	b	b	b	b	b	b				
25							b	b	b	b	b	2.9	2.8	2.7	b	2.5	2.5	b	2.0	q				
26						2.1	2.1	2.6	2.5	2.7	2.9	3.1	3.4	3.0	3.0	2.9	2.5	2.4	2.1	a				
27								2.7	2.7	2.8	2.9	3.1	3.0	3.1	e	2.8	2.6	2.1	a					
28						b	2.1	2.6	2.6	2.9	3.0	3.0	3.0	2.9	2.7	2.5	2.3	2.0	b					
29					b	2.3	2.5	2.7	3.0	3.1	3.3	3.0	3.1	3.1	3.1	3.0	2.7	2.4	2.0					
30						b	2.0	2.5	2.9	3.0	2.9	3.0	3.1	3.0	s	s	b	e	e					
31						1.8	2.1	2.5	b	b	3.0	3.0	3.1	3.0	3.1	2.8	2.7	2.4	(2.0)					
Median					*	*	2.1	2.5	2.7	3.0	3.0	3.0	3.0	3.0	3.0	2.8	2.5	2.4	2.0					
No.							15	21	20	20	23	21	21	20	21	24	21	21	14					

49a

HOURLY VALUES OF  $h' F_2$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

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	120	b	b	s	e	e	e	e	b							
2						b	b	b	b	b	b	100	100	100	b	100	b	b							
3						b	110	110	110	b	110	b	b	b	b	e	e	e	b						
4						b	b	b	b	b	b	b	b	b	b	b	110	120							
5						110	e	120	120	120	120	e	120	120	120	120	b	b	b						
6						a	110	110	b	b	b	100	b	120	100	110	b	b	b						
7							b	120	110	100	100	120	120	130	110	120	120	b	b						
8						b	b	b	120	120	120	e	110	s	110	100	130	b	b						
9					[100]	b	120	120	110	110	100	120	110	100	110	110	100	b							
10							120	(100)	100	(120)	110	100	120	100	120	120	130	b	b						
11						b	b	b	110	110	110	120	s	100	120	[130]	120	120	b						
12						b	120	120	110	110	100	100	110	110	100	100	100	110	120						
13						b	120	120	120	100	100	110	110	e	110	110	100	120	(140)	e	e				
14							e	e	e	e	100	s	100	110	100	110	120	110	130						
15						b	110	120	120	b	120	100	100	b	b	110	110	110	120	b					
16							120	110	110	110	110	100	100	100	110	120	120	[130]							
17						b	b	110	110	100	100	100	100	100	100	100	110	110	q						
18						b	110	100	100	100	100	120	b	b	110	b	b	b	b						
19								e	e	e	120	b	b	b	e	e	e	120	b						
20						b	b	120	120	s	s	100	110	e	b	s	b	120	b	b	b				
21							e	e	e	e	e	e	e	e	120	100	100	110	120						
22							100	110	100	100	100	110	100	100	100	100	100	100	[140]						
23						b	b	b	b	120	e	b	100	110	120	100	130	120	120						
24							e	e	e	e	e	e	e	e	b	b	b	b	b	b					
25							b	b	b	b	b	100	100	110	b	110	100	b	100	q					
26						110	110	100	100	100	100	100	110	100	110	120	100	100	a						
27								(110)	120	110	110	100	100	100	e	100	(100)	(100)	a						
28						b	110	120	110	100	100	100	100	100	110	(110)	120	120	b						
29					b	120	100	110	100	100	100	100	100	100	100	100	110	100	110						
30						(120)	100	110	100	100	100	100	100	110	s	s	b	e	e						
31						120	110	100	b	b	100	100	100	100	100	100	100	120	b						
Median					*	*	120	110	110	110	110	100	100	100	100	110	110	115	120						
No.							5	15	20	20	19	22	21	22	20	20	23	21	18	11					

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HOURLY VALUES OF  $f^oE_s$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

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	4.5	3.4	3.1	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	4.5	8.0	5.1	e	5.5	
2	4.6	5.0	4.6	4.5	e	e	e	e	2.9	e	2.8	3.0	2.7	2.6	e	e	e	e	2.1	1.7	e	e	2.5	e	
3	3.1	2.8	e	e	e	e	e	2.3	e	e	e	e	e	e	e	e	e	e	4.7	5.0	3.0	2.2	1.8	3.2	
4	2.1	e	e	e	2.8	e	e	e	e	e	e	e	e	e	e	4.0	e	3.1	3.4	2.6f	4.9	4.9	4.2	3.3	
5	2.7	e	e	e	3.3	2.2	2.5	2.7	e	e	e	e	e	3.2	3.0	3.1	e	e	e	3.2	e	e	e	3.2	
6	4.0	2.6	2.1	1.9	e	2.3	3.2	e	e	e	e	e	e	e	e	2.6	3.0	3.6	4.1	4.0	5.6	e	e	5.0	
7	4.4	5.0	e	4.7	e	e	e	e	e	3.0	e	e	e	e	e	e	e	2.3	1.9	3.1	2.4	e	6.5	6.7	
8	5.8	e	e	e	e	e	e	e	e	e	e	e	e	e	e	2.8	e	e	e	e	e	4.4	e	5.8	
9	e	5.5	4.3	3.7	e	e	e	e	3.0	e	e	e	e	e	e	e	e	b	2.4	e	e	e	e	b	
10	e	e	e	e	e	e	e	e	e	e	e	3.2	3.6	e	e	e	e	3.0	1.8	e	e	e	e	e	
11	3.2	2.4	2.7	e	e	e	e	e	e	e	e	e	e	e	e	e	e	3.0	1.8	2.3	e	e	4.0	5.1	
12	4.7	3.7	1.9	e	e	e	e	e	e	e	e	3.3	e	e	e	e	e	e	e	e	e	e	e	e	
13	e	e	e	e	e	e	e	3.8	e	e	3.8	e	e	e	3.5	e	e	2.4	e	e	e	2.8	e	e	
14	e	e	e	e	e	e	e	e	e	e	3.8	5.5	e	e	e	3.2	2.7	e	2.0	b	b	b	2.4f	4.3	
15	4.3	e	2.2	e	e	3.2	e	2.7	3.0	2.7	e	e	e	b	b	e	e	e	2.1	e	4.0	4.5	5.0	5.0	
16	4.0	e	e	e	e	e	e	3.0	3.2	3.5	3.6	4.0	3.5	3.3	e	e	e	e	e	e	e	e	e	e	
17	e	e	e	4.5	3.2	e	e	e	e	e	e	e	e	3.6	e	e	e	3.1	e	e	2.5	3.2	4.5	3.8	
18	3.3	e	e	e	e	e	e	e	e	e	3.2	e	e	e	e	3.5	e	4.5	4.3	e	4.5	3.8f	e	e	
19	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	3.7	b	3.9f	3.5	4.0	b	b	
20	5.0	5.0	e	4.3	e	e	e	3.0	e	e	e	e	e	e	e	e	e	b	4.6	e	e	e	e	e	
21	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	2.9	2.5	1.9	2.4	2.8	3.9	4.4	4.4
22	4.3	2.9	2.8	2.2	e	e	e	2.5	3.0	e	3.5	4.2	3.7	3.0	3.1	3.0	e	e	2.6	e	e	e	e	4.8	
23	5.0	3.5	2.2	e	e	e	e	3.8	3.0	e	e	e	e	e	e	e	3.2	5.1	5.0	4.2	7.0	e	7.0	4.5	
24	e	5.0	4.3	4.2	e	e	e	e	e	e	e	e	e	e	7.5	8.0	8.0	8.0	e	3.5	2.5	7.0	e	e	
25	4.0	e	5.5	6.8	e	e	3.6	e	e	e	3.1	3.5	e	e	e	7.5	8.0	5.0	4.2	5.5	5.5	3.9	4.1	2.7	
26	7.2	6.7	e	3.1	3.3	3.1	e	2.9	4.5	3.2	e	e	e	3.6	e	e	e	e	e	4.1	5.8	4.8	5.0	3.3	
27	4.8	4.8	5.0	4.3	4.8	3.0	e	e	e	e	e	3.4	e	e	e	3.0	e	2.3	6.6	8.0	e	e	4.1		
28	7.0	5.2	4.3	4.3	2.1	e	e	(3.0)	3.4	3.2	3.1	3.5	e	e	e	e	e	3.0	2.2	2.1	3.2	3.2	e	e	
29	2.5	e	e	e	e	e	e	e	e	e	e	e	e	e	e	3.4	2.7	e	e	e	e	e	4.0	3.1	
30	e	4.0	4.2	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	2.3	2.1	b	3.1	3.1	
31	4.2	e	2.7	3.0	1.9	e	e	e	e	e	e	e	e	e	e	e	3.0	e	e	e	4.0	4.3f	4.5	6.0	
Median	4.0	2.7	2.0	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1.8	2.4	2.5	2.8	2.4	3.3
No.	28	28	28	28	28	28	28	28	27	27	27	27	27	27	24	25	26	28	27	28	28	27	29	27	

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HOURLY VALUES OF  $h^oE_s$  OBSERVED DURING OCTOBER 1954 AT MACQUARIE ISLAND.

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

157.5°E Mean Time

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	120	130	130	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	120	130	100	e	100	
2	100	110	120	100	e	e	e	e	120	e	120	120	120	130	e	e	e	e	130	120	e	e	100	e	
3	110	110	e	e	e	e	e	120	e	e	e	e	e	e	e	e	e	e	110	110	120	120	120	110	
4	140	e	e	e	130	e	e	e	e	e	e	e	e	e	e	130	e	140	120	120	110	110	100	110	
5	130	e	e	e	100	130	120	130	e	e	e	e	e	e	130	130	130	e	e	140	e	e	e	120	
6	120	120	120	130	e	110	110	e	e	e	e	e	e	e	e	e	140	110	110	110	100	e	e	120	
7	130	100	e	100	e	e	e	e	e	160	e	e	e	e	e	e	e	150	130	130	130	e	110	110	
8	100	e	e	e	e	e	e	e	e	e	e	e	e	e	e	130	e	e	e	e	120	e	e	110	
9	e	100	100	120	e	e	e	e	130	e	e	e	e	e	e	e	160	b	140	e	130	e	e	b	
10	e	e	e	e	e	e	e	e	e	e	e	130	170	e	e	e	e	170	150	e	e	e	e	e	
11	100	100	110	e	e	e	e	e	e	e	e	e	e	e	e	e	e	140	150	140	e	e	130	120	
12	110	110	110	e	e	e	e	e	e	e	e	130	e	e	e	e	e	e	e	e	e	e	e	e	
13	e	e	e	e	e	e	e	120	e	e	100	e	e	e	130	e	e	e	e	e	e	e	e	e	
14	e	e	e	e	e	e	e	e	e	e	e	e	e	e	130	e	e	150	e	e	e	120	e	e	
15	110	e	120	e	e	110	e	130	130	150	e	e	e	b	b	e	e	e	140	b	b	b	140	120	
16	120	e	e	e	e	e	e	170	160	140	140	130	120	130	e	e	e	e	e	e	e	e	e	e	
17	e	(150)	e	110	110	e	e	e	e	e	e	e	e	170	e	e	e	150	e	e	120	150	120	110	
18	110	e	e	e	e	e	e	e	e	e	130	e	e	e	e	140	e	110	100	e	120	140	e	e	
19	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	140	b	130	110	110	b	b	
20	100	100	e	120	e	e	e	140	e	e	e	e	e	e	e	e	e	e	b	100	e	e	e	e	
21	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	120	170	140	180	130	120	110	100
22	100	110	120	100	e	e	e	120	110	e	120	130	130	140	140	130	e	e	140	e	e	e	e	120	
23	100	110	130	e	e	e	e	110	110	e	e	e	e	e	e	e	e	140	140	140	130	110	e	120	110
24	e	100	100	100	e	e	e	e	e	e	e	e	e	e	e	100	140	190	130	b	130	130	130	e	e
25	100	e	100	160	e	e	120	e	e	e	130	150	e	e	e	e	120	120	100	120	100	110	100	120	100
26	110	150	e	110	120	130	e	140	130	130	e	e	e	130	e	e	e	e	e	e	120	120	120	120	100
27	120	100	100	100	100	130	e	e	e	e	e	120	e	e	e	130	e	e	140	130	120	e	e	130	
28	120	100	120	110	110	e	e	(150)	140	140	150	130	e	e	e	e	e	e	130	130	110	110	100	e	
29	100	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	110	130
30	e	100	120	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
31	110	e	110	100	130	e	e	e	e	e	e	e	e	e	e	e	110	e	e	130	120	b	160	130	
Median	110	110	120	110	110	130	*	130	130	140	125	130	120	130	*	130	140	140	135	130	120	120	115	110	
No.	22	17	15	13	7	5		10	8	5	8	9	5	6		11	9	13	16	19	18	15	16	20	

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HOURLY VALUES OF  $f_oF_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep:  $1 \times 0 - 13 \times 0$  Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	b	3.6	3.9	b	4.0	4.1	c	c	c	c	4.4f	4.7	4.6f	4.2	4.0	a	a	a	a	
2	a	c	a	b	a	a	c	c	c	c	c	c	c	(4.4)	c	4.8	5.5	4.6	4.4	4.1	3.6	a	a	a	
3	a	a	a	a	2.7	2.5	2.9	b	3.8	b	b	4.4	4.8	b	b	4.8	4.8f	f	4.7	a	c	a	a	a	
4	as	3.7	b	a	a	3.3	3.8	3.9	4.0	4.3	4.7	4.8	5.0	5.4	5.1	5.1	5.0	5.3	5.6	5.7	4.1	as	as	3.5	
5	3.2	3.0	2.6	(2.0)	b	g	4.2	5.0	5.2	5.1	5.3	5.5	5.4	5.3	5.6	5.6	5.6f	6.0	6.0	4.8	4.3	3.8	3.8	a	
6	3.0f	3.0	2.5	2.3	2.6	3.3	g	3.9	4.2	4.3	4.4	4.5	4.6	4.5	4.9	4.9	4.9	5.6	5.0f	4.2f	4.0	3.8	a	a	
7	a	a	3.2f	2.8f	2.7	b	g	4.1	4.5	4.8	4.9	4.7	4.5	4.4	4.5	5.0	4.7	4.8	c	c	3.9f	3.4f	2.3		
8	3.6f	3.1	3.1	2.6	3.0	3.7	4.4	5.1	5.4	c	5.7	6.0	6.1	5.6	5.7	5.7	5.5	5.8	5.7	5.7	6.0	c	c	2.6f	
9	c	c	c	c	c	c	c	c	c	c	c	c	5.7	5.2	5.4	5.3	5.2	5.4	5.5	5.2	4.3	3.3f	2.8f	2.8	
10	2.4	a	1.8	a	2.5	3.6	g	4.2	4.6	5.0	5.0f	5.3	5.7	6.0	6.0	5.9	5.5	5.6	5.4	5.3	5.5	5.5	4.0	3.0	
11	2.4f	2.2	1.7f	1.8f	3.0	3.8	4.0	4.5	4.8	5.0	5.0	5.3	5.5	5.7	5.5	5.8	5.7	5.6	5.4	5.5	5.0	a	4.0f	4.4	
12	a	3.8	3.7f	3.0	3.1	3.7	g	4.5	c	a	5.0	5.0	5.2	5.4	5.4	5.5f	5.4	5.5	4.8	4.5	4.0	3.8	4.0f	a	
13	a	a	3.8f	3.2f	2.8	3.7	4.5	4.6	4.8	5.1	5.5	5.5	c	5.7	5.7	5.8	5.3	4.7	4.5	a	c	5.5	4.0	3.7	
14	4.7	2.8	(2.3)	2.4	3.0	4.0	4.2	4.8	5.0	5.8	5.6f	5.6	5.5	6.0	6.1	6.0	5.0	5.8	5.6	6.0	4.7	3.8	4.0f	3.7	
15	3.5	4.4f	3.5	3.1	3.5	3.8	4.3	4.3	4.6	5.0	5.0	5.1	5.1	5.0	5.2	5.2	5.1	5.6	a	5.5	5.2	5.0	4.5	3.7	
16	3.0	2.5f	2.1f	2.1f	3.2	3.8	4.4f	4.7	5.2	5.5	5.7	5.3	5.6	5.5	5.4	5.5	5.5	5.5	5.7	5.8	6.2	c	c	c	
17	2.7	2.4f	2.0f	2.2	3.3	3.9	4.3	5.3	5.5	5.9	5.7	6.0	b	6.5	6.2	6.0	5.8	a	a	a	a	a	a	a	
18	3.9	a	3.7	2.4	3.1	4.2	4.7	5.0	5.0	a	a	(6.3)	b	b	b	6.0	5.7	5.5	a	a	a	a	4.0	4.1	
19	a	a	a	a	a	3.9	4.1	4.0	5.3	a	a	a	a	a	a	a	7.8	a	a	4.5	a	a	a	a	
20	a	a	a	a	b	a	b	(4.0)	b	b	b	b	b	b	b	b	b	b	4.5f	b	b	b	b	b	
21	b	b	b	b	b	b	4.2	b	b	b	b	b	b	b	b	5.1	5.0	5.0	b	5.0	5.5	4.8	b	b	
22	b	b	b	b	3.4	3.7	3.9	4.1	4.3	4.4	b	5.7	b	b	5.0	e	c	5.0	b	c	c	c	c	c	
23	b	b	b	b	b	b	4.7	5.2	5.5	5.1	5.8	6.0	5.8	5.7	5.8	c	c	c	c	c	c	c	c	c	
24	c	4.0	bs	c	c	c	c	c	c	c	c	4.7	c	c	c	c	c	c	c	c	c	c	c	c	
25	a	a	a	2.5	(3.3)	4.2	4.6	5.3	5.7	6.2	6.0	6.0	6.7	6.4	6.3	6.3	6.4	6.4	6.4	6.0f	5.4f	b	b	b	
26	4.5	4.5	b	b	4.0	4.3	g	3.8	5.3	5.5	5.0	6.5	c	5.0	6.0	6.4	5.8	5.7	5.0	5.5f	6.0	6.0	6.0	a	
27	a	3.7	3.1	3.1	3.1	4.2	5.0	4.7	4.8	a	a	a	5.8	5.3	5.3	6.0	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	5.7	5.7	5.0f	4.3	a	
29	a	5.0f	4.7f	3.7f	3.5	3.8	4.1	4.2f	4.7	4.8	5.2	5.9	5.7	5.5	5.5	5.3	5.6	5.2	5.7	5.7	c	c	c	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	c	5.2	4.5	5.0	5.0	5.9	4.8f	3.9f	3.7	3.5f	3.2f	a
31																									
Median	3.2	3.4	3.1	2.5	3.1	3.8	4.2	4.5	4.8	5.0	5.1	5.5	5.5	5.4	5.4	5.5	5.4	5.5	5.2	5.5	4.8	3.8	4.0	3.6	
No.	11	14	15	15	18	20	23	23	21	17	18	21	17	21	22	24	24	21	22	20	17	12	13	10	

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HOURLY VALUES OF  $h'F_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep:  $1 \times 0 - 13 \times 0$  Mc/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	b	270	470	b	620	600	c	c	c	c	470	370	320	280	260	a	a	a	a	
2	a	c	a	b	a	a	c	c	c	c	c	c	c	(530)	c	390	360	350	320	320	300	a	a	a	
3	a	a	a	a	(460)	320	(290)	b	290	b	b	470	320	380	(470)	420	370	f	270	a	c	a	a	a	
4	as	300	b	a	a	290	330	520	500	490	420	410	370	320	340	330	310	300	270	240	250	as	as	350	
5	300	320	300	370	b	g	340	290	320	330	340	300	350	360	350	340	340	280	270	290	280	320	320	a	
6	350	290	270	340	280	270	g	460	500	440	430	450	450	370	390	350	350	290	250	350	440	a	a	a	
7	a	a	320	300	290	b	g	520	450	400	370	400	510	410	450	340	310	280	c	c	290	270	310		
8	320	300	290	270	260	250	290	320	300	c	280	280	300	320	320	300	290	290	260	250	240	c	c	290	
9	c	c	c	c	c	c	c	c	c	c	c	c	300	340	340	330	300	250	240	250	240	250	280	270	
10	250	a	270	a	270	250	g	430	370	300	330	320	320	300	300	300	310	260	250	240	260	250	250	260	
11	280	320	280	270	250	240	310	300	360	320	360	370	320	300	310	320	290	280	260	240	230	(290)	280	310	
12	a	320	250	270	290	270	g	380	c	c	360	360	380	350	350	350	280	280	250	270	250	270	270	a	
13	a	a	290	250	250	250	320	350	370	350	350	330	c	320	320	320	310	270	240	c	c	250	270	260	
14	260	270	a	270	250	260	250	330	330	400	320	340	350	330	290	320	300	290	250	240	240	280	280	300	
15	300	300	290	310	250	260	300	400	440	360	360	400	350	380	360	330	300	280	a	250	240	240	250	270	
16	270	250	250	250	240	240	330	330	330	330	330	350	310	320	330	320	300	300	270	230	230	c	c	c	
17	270	270	260	250	250	240	270	280	280	290	300	b	280	300	280	280	280	a	a	a	a	a	a	a	
18	280	a	260	270	250	280	300	310	330	a	(300)	300	b	(300)	(380)	300	280	300	250	240	250	250	250	280	
19	a	a	a	a	a	250	370	350	320	a	a	a	a	a	a	a	310	a	a	250	a	a	a	(300)	
20	a	a	a	a	b	a	b	(400)	b	b	b	b	b	b	b	b	b	b	300	b	b	b	b	b	
21	b	b	b	b	b	b	320	b	b	b	b	b	b	b	380	350	350	b	280	260	270	b	b	a	
22	b	b	b	b	250	230	440	360	390	450	b	320	(320)	b	420	c	c	320	b	c	c	c	c	c	
23	b	b	b	b	b	b	270	280	300	c	290	300	c	320	300	c	c	c	c	c	c	c	c	c	
24	c	c	bs	c	c	c	c	c	c	c	c	300	c	c	c	c	c	c	c	c	c	c	c	c	
25	a	a	a	320	(300)	260	260	320	300	290	280	300	280	290	290	280	280	270	270	250	300	b	b	b	
26	270	280	b	b	230	240	g	350	360	320	300	290	c	290	280	320	300	280	260	260	250	250	250	a	
27	a	280	270	250	240	280	300	260	340	c	c	c	290	300	370	330	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	230	230	220	240	250	a
29	a	260	240	200	240	240	370	370	370	420	250	280	280	290	320	290	310	270	250	230	c	c	c	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	c	340	320	400	350	310	260	230	230	250	280	a
31																									
Median	280	290	270	270	250	255	320	350	340	355	330	320	320	320	335	330	310	290							



HOURLY VALUES OF  $h_p f_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mo/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	b	280	u	b	u	u	e	e	e	u	u	320	300	270	a	a	a	a	a	
2	a	e	a	b	a	a	a	e	e	e	e	e	e	e	u	u	u	330	320	310	a	a	a	a	
3	a	a	a	a	u	400	300	b	290	b	b	u	u	u	u	u	f	270	a	e	a	a	a	a	
4	aa	300	b	a	a	300	u	u	u	u	u	u	u	u	u	u	310	310	300	260	280	aa	aa	e	
5	340	360	320	e	b	g	u	u	u	u	u	u	u	u	u	u	340	290	270	250	280	330	350	a	
6	350	320	290	e	290	280	g	u	u	u	u	u	u	u	u	u	350	290	250	350	e	a	320	340	
7	a	a	320	e	310	b	b	g	u	u	u	u	u	u	u	u	u	290	e	e	300	320	340	a	
8	320	310	320	290	280	260	u	u	u	e	u	u	u	u	u	u	290	300	280	280	250	e	e	300	
9	e	e	e	e	e	e	e	e	e	e	e	e	u	u	u	u	300	280	280	260	280	300	310	300	
10	300	a	290	a	270	280	g	u	u	u	u	u	u	u	300	300	310	270	260	270	300	280	290	300	
11	310	320	290	280	280	270	u	u	u	u	u	u	u	u	u	u	290	280	270	260	270	u	320	330	
12	a	330	270	280	290	270	g	u	e	e	u	u	u	u	u	u	u	280	270	260	270	280	330	300	a
13	a	a	300	290	270	280	u	u	u	u	u	u	e	u	u	u	320	280	250	e	e	280	300	300	
14	300	330	a	310	300	290	290	u	u	u	u	u	u	u	290	u	300	300	270	270	270	330	340	350	
15	360	300	300	310	270	270	u	u	u	u	u	u	u	u	u	u	280	a	280	270	260	280	300	300	
16	310	270	270	270	250	250	u	u	u	u	u	u	u	u	u	u	300	280	270	250	e	e	e	e	
17	280	280	270	270	260	270	u	u	u	u	u	u	b	u	u	290	280	a	a	a	a	a	a	a	
18	320	a	310	290	280	280	u	u	u	a	u	u	b	u	u	310	u	300	e	e	e	e	300	350	
19	a	a	a	a	a	280	u	u	u	a	a	a	a	a	a	a	370	a	a	280	a	a	a	a	a
20	a	a	a	a	b	a	b	u	b	b	b	b	b	b	b	b	b	b	u	b	b	b	b	b	b
21	b	b	b	b	b	b	u	b	b	b	b	b	b	b	u	u	u	b	290	270	330	b	b	a	
22	b	b	b	b	270	260	u	u	u	u	b	u	u	b	u	e	e	u	b	e	e	e	e	e	e
23	b	b	b	b	b	b	u	u	u	u	u	300	u	u	u	e	e	e	e	e	e	e	e	e	e
24	e	e	ba	e	e	e	e	e	e	e	e	310	e	e	e	e	e	e	e	e	e	e	e	e	e
25	a	a	a	320	310	270	u	u	u	u	u	u	280	290	290	290	290	280	280	270	320	b	b	b	
26	330	300	b	b	290	300	g	u	u	u	u	u	e	u	u	u	300	280	280	300	320	310	290	a	
27	a	310	300	280	240	u	u	u	u	e	e	e	e	u	u	u	e	e	e	e	e	e	e	e	e
28	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	250	260	250	260	270	a	
29	a	270	250	250	250	u	u	u	u	u	u	u	u	u	u	u	310	u	260	260	e	e	e	e	
30	e	e	e	e	e	e	e	e	e	e	e	e	e	u	u	u	u	300	u	230	260	300	300	a	
31																									
Median No.	320	310	295	285	280	280	g	*	*	*	*	*	*	*	*	*	300	295	280	270	280	300	300	(300)	
	11	13	14	12	17	18	7										13	16	20	20	17	11	13	9	

52a

HOURLY VALUES OF  $(M3000) f_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mo/s in 1m55s

157.5°E Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	a	a	a	a	a	b	3.1	2.6	b	e	e	e	e	e	e	2.5	2.9	2.9	3.0	3.5	a	a	a	a	
2	a	e	a	b	a	a	e	e	e	e	e	e	e	(2.5)	e	2.7	2.9	2.9	2.9	3.1	3.1	a	a	a	
3	a	a	a	a	2.6	2.9	3.1	b	3.4	b	b	2.5	2.8	b	b	2.6	2.8	f	3.3	a	e	a	a	a	
4	aa	3.3	b	a	a	3.1	3.1	2.5	2.6	2.6	2.7	2.8	3.0	3.1	3.0	3.1	3.0	3.0	2.9	3.2	3.2	aa	aa	3.1	
5	2.7	2.8	2.8	(2.8)	ba	g	3.1	3.2	3.2	3.1	3.0	3.2	3.0	2.9	2.9	2.9	3.1	3.2	3.1	2.9	3.2	2.9	2.8	a	
6	2.9	2.9	3.0	3.1	3.1	3.3	g	2.7	2.5	2.7	2.7	2.8	2.6	2.7	2.8	2.8	2.9	2.9	3.1	3.3	2.8	2.6	a	a	
7	aa	a	3.0	3.1	3.1	b	b	g	2.5	2.6	2.8	3.0	2.8	2.5	2.8	2.7	3.0	3.1	3.1	e	e	3.1	2.7	3.0	
8	2.8	3.0	2.8	3.2	3.1	3.4	3.1	3.0	3.2	e	3.3	3.3	3.3	3.0	3.1	3.2	3.2	2.9	3.2	3.1	3.2	e	e	3.3	
9	e	e	e	e	e	e	e	e	e	e	e	e	e	3.2	3.1	3.0	3.0	3.0	3.1	3.1	3.0	3.1	3.0	2.9	
10	3.1	a	3.2	a	3.4	3.2	g	2.7	3.0	3.1	3.2	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.3	3.3	3.1	3.0	2.9	3.1	
11	3.1	3.0	3.3	3.3	3.2	3.2	3.1	2.9	3.2	3.1	2.9	3.1	3.2	3.2	3.0	3.2	3.2	3.1	3.3	3.2	3.2	a	2.8	2.8	
12	a	2.9	3.0	3.2	3.2	3.3	g	2.8	e	e	3.0	3.1	3.0	3.0	2.9	2.8	3.4	3.1	3.1	3.2	3.1	2.8	3.0	a	
13	a	a	3.1	3.2	3.4	3.2	3.0	3.0	3.0	3.1	3.0	3.2	e	3.1	3.1	3.1	3.0	3.1	3.4	e	e	3.1	3.2	2.9	
14	2.7	3.0	3.2	2.8	3.1	3.2	3.1	3.1	3.1	2.7	2.9	3.1	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.1	3.1	2.9	2.9	2.7	
15	2.5	2.8	3.1	3.1	3.4	3.2	3.1	2.8	2.7	2.9	2.9	2.8	3.0	2.9	2.8	2.8	3.1	3.1	a	3.0	3.1	3.1	3.0	3.0	
16	3.1	3.3	3.2	3.3	3.4	3.3	3.1	3.1	3.1	3.0	3.0	2.9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	e	e	e	
17	3.0	3.1	3.2	3.2	3.2	3.2	3.8	3.3	3.3	3.3	3.2	3.2	b	3.2	3.1	3.1	3.2	a	a	a	a	a	a	a	
18	2.9	a	3.0	3.1	3.2	3.2	3.2	3.1	3.1	a	e	e	b	b	b	3.1	3.2	3.1	a	a	a	a	a	a	
19	a	a	a	a	a	3.2	3.1	3.2	3.2	a	a	a	a	a	a	a	2.7	a	a	3.2	a	a	a	a	a
20	a	a	a	a	b	a	b	e	b	b	b	b	b	b	b	b	b	b	3.0	b	b	b	b	b	
21	b	b	b	b	b	b	3.2	b	b	b	b	b	b	b	b	b	b	b	3.0	b	b	b	b	b	b
22	b	b	b	b	3.3	3.3	2.7	3.1	3.1	2.7	b	3.1	b	b	b	b	2.7	e	e	3.1	b	e	e	e	e
23	b	b	b	b	b	b	3.3	3.3	3.2	3.2	3.2	3.1	2.8	3.0	3.2	e	e	e	e	e	e	e	e	e	
24	e	3.1	b	e	e	e	e	e	e	e	e	3.0	e	e	e	e	e	e	e	e	e	e	e	e	
25	a	a	a	3.1	3.0	3.3	3.6	3.0	2.9	3.2	3.3	3.1	3.1	3.1	3.2	3.1	3.1	3.1	2.9	2.9	2.7	b	b	b	
26	2.7	2.8	b	b	3.1	2.9	g	3.1	2.9	3.1	3.2	3.2	e	3.2	3.3	3.1	3.1	3.1	3.2	2.9	2.7	2.7	2.6	a	
27	a	2.8	3.0	3.1	3.6	3.3	3.2	3.4	3.1	e	e	e	e	3.2	3.1	2.9	2.9	e	e	e	e	e	e	e	
28	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	3.3	3.7	3.2	3.3	3.3	a	
29	a	3.3	3.1	3.3	3.5	3.2	3.1	2.8	2.9	2.7	3.0	3.2	3.2	3.2	3.1	3.2	3.1	3.4	3.3	3.1	e	e	e	e	
30	e	e	e	e	e	e	e	e	e	e	e	e	e	2.9	3.1	2.7	2.8	3.0	3.3	3.6	3.3	3.0	3.0	a	
31																									
Median No.	2.9	3.0	3.1	3.1	3.2	3.2	3.1	3.0	3.1	3.0	3.0	3.1	3.0	3.1	3.1	3.0	3.1	3.1	3.2	3.1	3.1	3.0	3.0	3.0	
	11	14	15	15	18	20	23	22	21	16	17	20	17	21	22	24	24	21	22	20	17	12	13	10	

52b

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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								3.7	b	3.8	b	a	a	a	a	3.8	3.7	3.7f	q					
2			b	a	a	a	c	c	c	c	c	c	c	c	b	b	3.7	3.4	(3.4)	(2.5)				
3			a	a	b	2.1	b	3.0	b	b	4.0	4.0	(4.0)	b	3.8	3.8	a	3.1	q					
4			a	a	a	3.3	3.7	3.8	4.0	4.0	4.2	4.2	4.1	4.1	4.0	3.8	3.5	3.1	q					
5			q	q	3.5	3.5	3.8	4.0	4.1	4.2	4.3	4.3	4.2	4.1	4.0	3.8	3.5	3.0	q					
6				q	2.4	3.7	3.7	3.8	4.0	4.0	4.2	4.1	4.2	4.1	4.0	3.8	3.6	3.0	2.0					
7				q	b	b	3.7	3.9	3.9	4.0	4.2	4.2	4.2	4.0	4.0	3.8	3.6	3.1	c					
8				q	2.4	3.7	4.0	4.0	c	4.3	4.3	4.2	4.3	4.2	4.1	4.0	3.6	3.0	q					
9			a	a	c	c	c	c	c	c	c	4.4	4.4	4.3	4.1	3.7	3.1	q						
10					q	3.7	3.8	4.0	4.1	4.4	4.3	4.3	4.3	4.0	4.0	3.8	3.5f	3.4	q					
11					q	3.7	3.8	4.0	4.1	4.3	4.4	4.5	4.2	4.3	4.3	4.0	3.3	3.2	2.3					
12					q	4.0	3.8	c	c	4.2	4.2	4.3	4.4	4.2	4.1	4.0	4.0	3.0	2.2					
13					q	3.5	3.8	4.1	4.2	4.3	4.4	c	4.3	4.3	4.2	3.5	3.1	q						
14					q	(3.1)	3.8	4.1	4.1	4.4	4.5	4.5	4.3	4.4	4.3	3.5	3.7	3.3	q					
15					q	3.5	3.9	4.1	4.2	4.2	4.4	4.4	4.3	4.1	4.1	3.9	3.8	s	2.0					
16					q	3.7	3.9	4.1	4.2	4.3	4.4	4.5	4.5	4.2	4.1	4.0	3.8	3.2	q					
17				q	s	3.6	4.0	4.2	4.3	4.5	4.5	b	4.3	4.2	4.2	3.7	s	s	s					
18				b	b	3.1	3.7	4.0	4.2	a	s	(4.0)	b	b	b	3.9	4.0	3.8	s	q				
19				a	a	2.8	3.6	3.7	4.0	s	s	s	s	s	s	4.0	s	s	s					
20				as	b	a	b	(3.9)	b	b	b	(4.0)	b	b	4.2	4.0	b	b	3.5f	b				
21				b	b	b	b	b	b	b	b	b	b	4.1	4.0	4.0	b	b	3.4	q				
22					q	3.6	3.8	4.0	4.1	4.1	b	b	b	4.1	c	c	(3.8)	bs	o	o				
23					q	3.8	3.7	4.0	a	4.2	4.0	b	4.5	4.3	c	c	c	c	c					
24					c	c	c	c	c	c	c	3.2	c	c	c	c	c	c	c					
25					q	3.0	3.6	4.3	4.0	4.4	4.4	4.3	4.5	4.3	4.3	4.2	4.0	3.7	3.5	q				
26					q	4.3	3.2	4.2	4.4	4.3	4.5	c	3.4	4.3	4.5	4.0	3.5	2.9	2.7f					
27				b	2.0	3.3	3.7	3.5	4.0	c	c	c	4.3	4.3	4.2	c	c	c	c					
28				c	e	e	c	c	c	c	c	c	c	c	c	c	c	c	3.5					
29					q	(3.1)	3.7	3.9	4.1	4.2	4.2	4.3	4.3	4.3	4.2	4.0	3.7	3.5	q					
30				c	c	c	c	c	c	c	c	c	c	4.3	4.1	(4.0)	4.0	3.7	3.3	q				
31																								
Median					*	3.0	3.6	3.8	4.0	4.1	4.2	4.3	4.3	4.3	4.2	4.1	3.9	3.7	3.2	2.2	*			
No.						8	22	23	21	16	18	21	16	21	23	23	23	21	19	6				

53a

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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					q	q	b	250	b	230	b	c	c	c	c	220	240	260	q					
2				b	a	a	c	c	c	c	c	c	c	c	c	b	b	240	260	(250)	(250)			
3				a	a	b	(250)	b	(230)	b	b	220	200	b	b	220	220	a	c	q				
4				a	a	a	250	240	230	230	230	220	200	220	180	210	210	250	250	q				
5				q	q	270	240	230	220	200	200	220	200	200	s	200	200	c	240	q				
6					q	230	240	220	200	220	200	200	190	230	210	220	320	240	260	230				
7					q	b	b	230	220	200	200	220	200	200	200	210	230	220	240	c				
8					q	(240)	240	220	220	c	200	200	220	210	220	220	220	240	240	q				
9				c	c	c	c	c	c	c	c	c	200	180	200	200	220	240	q	q				
10						q	230	210	220	190	200	210	200	200	190	210	210	180	230	q				
11						q	220	220	200	210	220	200	200	200	200	210	210	220	220	230				
12						q	250	220	c	c	220	180	220	200	190	220	230	220	240	240				
13						q	240	230	220	200	210	220	c	220	210	210	220	220	q					
14						q	(230)	220	220	200	200	200	220	200	220	220	220	220	230	q				
15						q	240	220	210	200	220	200	200	200	210	200	220	210	s	240				
16						q	230	220	200	200	190	210	180	190	200	200	200	230	220	q				
17					q	s	230	230	220	210	200	180	b	200	200	200	200	s	s	s				
18					b	b	240	240	200	210	a	(220)	200	(220)	(210)	190	230	240	(240)	q				
19					a	a	230	200	220	220	s	s	s	s	s	s	220	s	s	s				
20					a	b	a	b	c	b	b	b	(200)	b	b	210	220	b	b	c	b			
21					b	b	b	250	b	b	b	b	b	b	b	200	210	230	b	240	q			
22						q	250	240	230	200	200	b	(220)	b	210	c	c	b	b	c	c			
23						q	220	s	s	a	200	210	b	190	200	c	c	c	c	c				
24					c	c	c	c	c	c	c	c	250	c	c	c	c	c	c	c				
25						q	230	220	200	210	210	200	(200)	200	220	200	100	200	240	240	q			
26						q	230	230	220	220	210	200	c	200	220	200	220	220	220	200				
27					b	200	250	230	220	210	a	e	c	200	200	180	e	e	e	e				
28					c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	200				
29						q	(240)	220	220	220	200	220	200	200	180	200	200	210	230	q				
30					e	c	a	e	e	a	c	c	c	200	180	(190)	200	210	200	q				
31																								
Median					*	240	235	220	220	200	200	200	200	200	200	210	220	220	240	235	*			
No.						8	22	21	20	16	19	21	18	21	23	23	23	19	18	6				

53b

HOURLY VALUES OF  $f_oE$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND.

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5% Mean Time

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				a	a	b	b	2.6	b	b	b	a	a	a	a	2.8	b	2.7	2.1f	a				
2				b	a	b	c	c	c	c	c	c	c	c	c	b	c	2.9	2.2	a				
3				a	a	b	b	b	b	b	3.1	3.1	b	b	3.0	2.8	2.3	a	a					
4				a	a	b	2.5	2.7	2.6	2.9	2.9	3.0	3.0	3.0	(3.0)	(2.8)	(2.5)	2.5	2.0	a				
5				a	bs	a	2.5	2.7	2.8	3.0	a	3.0	3.2	3.1	a	b	b	b	a					
6				a	b	1.9	2.9	2.6	2.7	3.0	3.0	3.0	3.2	3.4	b	3.0	2.7	2.5	2.5	a				
7				a	b	b	b	2.7	2.8	3.0	3.1	3.2	3.4	3.2	3.1	3.0	2.8	2.5	2.0	c	c			
8				b	a	1.9	2.4	2.7	2.7	c	2.9	2.9	3.0	3.1	3.2	3.0	2.8	2.5	2.1	a				
9				c	c	c	c	c	c	c	c	c	3.3	3.3	3.1	3.0	2.5	2.0	1.8	b				
10				a	b	2.0	2.3	2.5	2.9	3.0	3.1	3.3	3.4	3.5	3.1	3.0	2.7	2.5	2.1	b				
11						1.9	2.4	2.7	3.0	3.1	3.2	3.3	3.1	3.1	3.3	3.0	2.9	2.5	2.2	1.6				
12						2.3	c	2.8	c	c	(3.3)	(3.3)	c	3.4	3.2	3.0	3.0	a	2.0	1.5				
13					1.6	1.9	2.5	2.6	3.0	3.1	3.0	3.3	c	3.5	3.2	3.1	2.4	2.1	1.8	c	c			
14				e	b	(2.2)	2.5	2.6	3.0	3.1	3.3	3.2	3.4	3.4	3.4	3.1	3.0	2.7	2.2					
15						2.4	2.4	3.6	2.9f	3.0	3.0	3.2	3.2	3.3	3.1	3.0	2.7	2.6	a	1.5				
16						2.0	2.6	2.9	3.0	3.0	3.2	3.2	3.3	3.2	3.2	3.0	2.8	2.5	2.1	1.7				
17				b	b	a	2.5	2.9	3.0	3.1	3.2	3.2	b	b	b	b	2.8	a	a	a	a			
18				b	b	2.1	2.5	2.8	3.1	a	a	b	b	b	b	3.0	2.9	a	(2.1)					
19						2.0	2.5	3.0	(3.1)	a	a	a	a	a	a	a	b	a	a					
20						a	b	b	b	b	b	b	b	b	3.2	3.7	b	b	3.0	b				
21						b	b	b	b	b	b	b	b	b	3.0	3.0	3.0	bs	bs	b				
22				b	b	b	(2.3)	2.7	2.7	3.0	b	b	b	b	b	c	b	b	c					
23				b	b	b	b	b	b	b	b	b	b	b	b	c	c	c	c	c				
24						c	c	c	c	c	c	2.1	c	c	c	c	c	c	c	c				
25						2.4	2.7	2.7	3.0	3.0	2.9	3.0	3.3	3.3	3.3	3.0	2.8	2.5	2.2	1.8f				
26						b	2.8	2.5	2.9	3.2	b	b	c	(3.2)	3.2	2.8	3.0	2.7	2.7	2.0				
27						2.0	2.7	2.7	3.0	b	c	b	3.5	3.4	3.2	(3.0)	c	c	c	c				
28						e	c	c	c	c	c	c	c	c	c	c	c	c	c	2.5				
29					1.8	1.9	2.8	2.6	3.1	3.2	3.4	3.6	3.7	3.3	3.1	3.0	3.0	2.6	2.0	1.7				
30						c	c	c	c	c	c	c	c	c	3.0	3.2	b	b	2.7	2.2	1.7			
31																								
Median					*	2.0	2.5	2.7	3.0	3.0	3.1	3.2	3.3	3.3	3.2	3.0	2.8	2.5	2.1	1.7				
No.						14	18	21	19	15	14	17	15	18	18	21	19	18	20	8				

HOURLY VALUES OF  $h^pE$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND.

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5% Mean Time

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

HOURLY VALUES OF  $f^oF_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	4.5	3.7	3.5	3.7	4.0	a	a	g	g	3.2	h	a	a	a	g	g	3.6	2.5	3.0	3.4	5.0	5.0	5.0		
2	3.7	c	3.8	e	3.0	4.7	c	c	c	c	c	c	c	c	c	c	3.0	2.7	3.0	3.0	5.2	4.4	7.8		
3	e	e	e	4.0	2.9	e	3.6	g	g	g	g	g	g	g	g	3.5	5.7	2.9	5.0	c	4.2	4.7	4.3		
4	4.0	3.2	e	3.8	3.0	2.6	2.9	g	3.0	3.1	3.3	3.3	3.3	g	g	g	g	g	2.3	2.7	3.2	4.5	5.0	3.3	
5	2.8	2.1	1.6	2.2	ee	2.2	2.5	2.7	2.7	3.2	g	g	g	g	e	e	e	ee	e	3.5	7.6	4.2	4.5	4.5	
6	3.3	2.1	e	2.1	e	g	g	g	3.1	g	g	3.0	g	3.1	g	g	g	g	3.0	3.1	3.2	4.0	5.0	5.3	
7	e	4.0	2.3	2.3	e	e	e	2.8	2.9	3.1	g	g	g	g	g	g	g	3.2	2.8	c	c	e	1.9	4.3	
8	3.0	3.0	2.1	e	2.9	2.2	g	2.8	3.5	c	3.3	3.5	3.5	g	g	3.7	g	3.1	g	7.2	3.0	c	c	3.3f	
9	c	c	c	c	c	c	c	c	c	c	c	c	3.5	3.1	g	3.4	g	2.2	1.8	e	e	2.2	2.5	e	
10	e	4.5	3.2	3.6	e	g	g	g	g	g	3.2	g	g	g	g	g	g	g	3.1	4.2	5.0	4.5	3.0	3.2	
11	1.9	2.2	2.0f	e	e	g	g	2.8	g	g	g	g	3.3	3.3	g	3.1	g	g	3.5	4.5	3.2	3.0	2.2	4.5	
12	4.3	2.9	2.3	2.5	2.8	2.3	4.0f	3.8	c	c	g	g	c	3.3	3.3	b	3.2	e	3.3	4.2	3.8	2.4f	3.0	5.5	
13	5.0	4.7f	3.7f	e	g	g	g	g	g	3.1	3.2	g	g	g	g	e	3.5	e	2.2	c	c	e	4.6	4.4	
14	e	e	e	e	e	g	g	g	3.1	g	g	g	g	g	g	g	g	g	4.5	3.5	3.0	4.7	6.0	4.2	
15	5.0	3.7	3.0	3.2	1.9	g	2.5	3.2	g	3.2	4.0	3.4	3.5	3.4	3.4	3.6	g	g	e	2.2	2.0	e	e	5.7	
16	2.2	3.2	3.0	e	2.1	g	3.1	g	7.0	g	g	3.5	3.4	3.7	g	g	2.8	g	2.9	5.2	1.8	c	c	c	
17	e	e	e	e	e	g	g	g	3.0	g	3.5	3.5	g	g	3.1	3.2	g	e	e	e	e	e	e	3.9	
18	e	e	e	e	e	g	g	g	g	3.5	3.2	g	g	g	g	g	g	e	2.8	2.4	e	e	e	e	
19	e	4.0	3.8f	b	b	g	g	g	e	e	e	e	e	e	e	e	e	e	e	2.5	b	b	4.0	b	
20	e	3.7	3.1	3.7	b	2.7	g	g	g	g	g	g	g	g	3.6	3.7	g	g	g	e	e	e	e	e	
21	b	b	b	b	b	b	b	b	4.0	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	3.9
22	e	e	e	e	e	e	g	2.9	3.2	3.1	3.1	g	g	g	g	c	c	g	g	c	c	c	c	c	
23	bs	bs	bs	bs	bs	1.8	b	b	(3.5)	5.0	b	b	b	b	b	c	c	c	c	c	c	c	c	c	
24	c	b	bs	c	c	c	c	c	c	c	c	b	c	c	c	c	c	c	c	c	c	c	c	c	
25	4.1	4.2	3.0	2.3	2.7	g	2.8	3.0	g	g	g	3.1	3.4	3.8	3.3	g	g	3.0	2.8	g	2.1	es	es	es	
26	e	e	es	es	1.8	g	g	2.5	3.3	3.2	3.6	3.6	c	g	3.8	3.5	g	3.0	g	g	g	3.0f	3.5	3.3	
27	5.0	e	3.0	e	g	g	g	g	3.0	c	c	c	g	g	g	g	c	c	c	c	c	c	c	c	
28	e	e	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	2.6	7.5	2.5	e	3.2	5.2	
29	5.2	3.7	3.2	1.7	2.0	2.1	2.7	2.8	3.7	7.0	g	3.6	g	3.7	g	3.1	b	g	g	2.5	c	c	e	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	3.7	g	3.2	(2.9)	2.8	3.2	3.0	2.8f	2.8	2.5	5.0f	
31																									
Median	3.2	3.1	2.6	1.9	1.8	**	**	**	3.0	3.1	3.1	**	**	**	**	**	**	**	2.7	3.0	3.0	3.0	3.4	4.3	
No.	20	22	22	22	22	24	23	23	23	20	20	20	19	23	21	23	22	20	23	22	18	18	20	23	

HOURLY VALUES OF  $h^oF_2$  OBSERVED DURING NOVEMBER 1954 AT MACQUARIE ISLAND

Sweep: 1.0 - 13.0 Mc/s in 1m55s

157.5°E Mean Time

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	100	100	100	a	a	g	g	150	h	a	a	a	c	g	g	130	140	120	110	100	120	100	
2	100	c	120	e	100	100	c	c	c	c	c	c	c	c	c	e	c	170	140	130	130	100	120	100	
3	e	e	e	100	100	a	100	g	g	g	g	g	g	g	g	g	120	100	170	100	c	100	110	(110)	
4	100	100	e	110	100	100	110	g	150	150	140	140	130	g	g	g	g	g	130	120	140	100	100	100	
5	110	110	120	100	es	100	150	120	140	120	g	g	g	g	e	e	e	es	e	120	120	120	120	100	
6	100	140	e	100	e	g	g	g	130	g	g	120	g	140	g	g	g	g	120	130	120	100	110	100	
7	es	100	100	100	e	e	e	140	150	130	120	g	g	g	g	g	g	g	130	120	c	c	e	150	100
8	150	150	150	e	110	140	g	130	110	c	120	110	110	g	g	130	g	110	g	110	110	e	c	110	
9	c	c	c	c	c	c	c	c	c	c	c	c	130	120	g	120	g	130	110	e	e	120	110	e	
10	e	100	120	130	e	g	g	g	g	g	130	g	g	g	g	g	g	g	150	130	130	130	140	130	
11	120	120	120	e	e	g	g	140	g	g	g	120	g	120	g	120	g	g	130	120	120	130	160	100	
12	100	100	110	120	100	130	c	140	c	c	g	e	130	130	b	140	e	130	130	120	140	130	100	100	
13	100	100	110	e	g	g	g	g	g	130	130	g	c	g	e	g	110	e	130	c	c	e	100	100	
14	e	e	e	e	e	g	g	g	140	g	g	g	g	g	g	g	g	g	130	130	130	120	140	110	
15	100	100	100	120	110	g	120	100	g	130	100	100	110	110	110	120	g	g	e	120	100	e	e	100	
16	110	100	110	e	100	g	120	g	110	g	g	120	120	120	g	g	120	g	130	120	100	c	c	c	
17	e	e	e	e	e	g	g	g	130	g	130	120	g	g	100	110	g	e	e	e	e	e	e	120	
18	e	e	e	e	e	g	g	g	g	130	130	g	g	g	g	g	g	e	130	130	e	e	e	e	
19	e	100	100	b	b	g	g	g	e	e	e	e	e	e	e	e	e	e	e	140	b	b	120	b	
20	e	100	120	100	b	100	g	g	g	g	g	g	g	g	120	140	g	g	g	e	e	e	e	e	
21	b	b	b	b	b	b	b	b	120	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	120
22	e	e	e	e	e	e	g	130	120	110	130	g	g	g	g	c	c	g	g	c	c	c	c	c	
23	b	b	b	b	b	100	b	(120)	100	b	b	b	b	b	c	c	c	c	c	c	c	c	c	c	
24	c	b	bs	c	c	c	c	c	c	c	c	b	c	c	c	c	c	c	c	c	c	c	c	c	
25	100	100	100	120	100	g	140	120	g	g	g	120	120	130	110	g	g	140	160	g	120	bs	bs	bs	
26	e	e	es	es	100	g	g	140	130	130	120	120	c	g	120	100	g	130	g	g	g	120	120	130	
27	110	e	110	e	g	g	g	g	130	c	c	c	g	g	g	g	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	120	100	120	e	120	100	
29	100	100	100	100	120	120	150	140	120	110	g	120	g	130	g	110	b	g	g	120	e	e	c	c	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	110	g	110	(100)	130	120	110	100	100	110	100	
31																									
Median	100	100	110	100	100	100	120	135	130	130	130	120	120	120	115	120	120	130	130	120	120	120	120	100	
No.	14	16	16	12	11	8	7	10	14	11	10	9	7	9	6	9	5	9	17	18	15	13	17	19	

HOURLY VALUES OF foF2 OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	3.9	3.0	3.2f	3.7	(3.6)	b	4.1f	4.4	5.2	5.0	5.3	5.5	5.6	5.9	5.8	5.7	5.7p	4.9p	7.0	5.5	4.4p	bs	3.7	3.0
2	4.9p	2.1f	2.4	2.4f	3.8p	4.3p	4.5pf	4.7	5.4	5.5	5.5	6.3	a	6.1	5.9	6.0	5.7	5.8p	5.8	6.2	5.8p	5.7ph	4.7f	4.2p
3	5.0f	3.9f	3.8f	5.2	3.8p	a	4.6	4.5	5.7	5.3	a	a	5.4	5.7	5.7	5.5	5.4	5.4	5.7	5.8	6.2	6.5pf	5.9p	5.0p
4	3.8f	3.1f	2.7f	2.7f	3.7p	3.8	4.3	4.7	5.0	5.3	5.7	5.7p	5.6	5.7	5.5	5.5	5.8	5.8	5.4	6.0	6.0f	4.5p	a	3.9f
5	4.0	3.9	3.2	3.1f	2.7f	3.6p	g	4.3p	5.2	5.1f	5.5	5.5	5.5	5.6	5.5	a	a	5.5	6.0	6.0h	6.0fh	5.7p	4.8h	4.5pf
6	3.6f	3.1f	2.5	3.6p	3.5	4.0	4.5	4.8	5.4	5.5	6.0	6.0	5.8	5.9	5.9	6.0	5.9	6.5	6.4p	5.8p	5.2pf	5.2ps	5.7ps	4.1f
7	4.1f	a	3.2f	2.7	3.5p	(3.8)	4.3	4.4	5.4	5.2	5.5	5.5	6.4	5.7	6.0	5.8	5.8	6.0	6.3	5.1	5.0f	5.0	4.8	5.0pf
8	5.0h	2.9h	2.4	2.7	3.5p	(4.0)	b	5.0	5.5	5.5f	5.5f	6.0	6.0	5.8	5.3	5.7	6.4	6.1	6.1	5.8	e	a	a	a
9	3.7f	3.8fs	3.3fs	2.8f	3.2	3.7	4.5	4.7	5.4	5.3	6.1	6.2	5.6	5.8	5.7	5.8	6.1	7.5p	5.7	5.1	5.0f	a	5.0p	5.0p
10	4.5	4.5p	3.5p	2.5	3.3	4.5	4.7	5.5p	5.7	5.6	6.5	a	6.5	5.8	5.8	5.7	5.7p	6.0	7.5p	6.2	6.3	6.2f	6.2f	5.2p
11	4.1	3.8	3.2	3.0	3.5	5.0	5.0	4.7	5.7	5.3	5.5	7.0	6.1	6.5	6.0	6.5	6.0	5.3	5.7	6.0	6.7p	5.6p	5.6	p
12	4.3	4.0	3.5f	3.0	3.5	3.8	5.0	5.1	5.7	5.7	5.2	6.0	6.0	6.0	6.0	5.7	5.0	6.0	6.5	4.0fh	4.0f	6.5z	5.2z	4.0h
13	3.7f	2.5f	3.0	2.7	3.5	3.8	4.3p	4.0	4.8	5.0	4.5	4.8	5.0	5.0p	4.5	4.5	3.7	4.4	4.0	4.0	3.0	3.4	3.4f	2.9
14	2.6f	2.5	a	a	a	a	a	a	a	a	a	5.2	5.0	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0fh	4.3f	4.0f	3.5
15	3.0f	2.5f	2.4	2.8	3.7	4.8	4.5	5.4	5.3	5.8	6.0	6.0	6.5	6.2	6.1	6.4	6.0	5.8	5.5	5.4	5.2h	5.0fh	4.7fh	3.9fh
16	3.3f	2.7	2.4f	3.3	4.2p	4.7p	4.7	5.5	5.3	5.2	5.3	5.6	5.7	5.7	5.6	5.9	5.5	5.6	5.5	5.6	5.5h	5.7	4.5fh	4.2
17	a	3.3	2.5	2.8	3.5	4.0	4.5p	a	5.5	5.5	4.5	5.5	5.5	5.5	5.5	5.7p	6.0p	5.8	6.0	q	a	a	4.0f	a
18	a	a	a	a	3.7	4.2	4.3	4.4	4.5	g	4.5	5.0	5.3	5.0	5.0f	5.5f	5.1f	4.3	4.1ph	4.0	a	a	3.9	4.3
19	c	a	a	a	a	a	a	a	a	a	5.3	(5.3)	a	5.5	5.0	5.3	5.6	5.5	a	5.5	5.5h	5.0	a	a
20	(4.5)	a	a	3.5	3.5	4.0f	4.3	4.8h	4.5	g	5.0	5.0	5.5	5.5	5.5	5.5	5.6	6.5p	6.0p	5.3	4.5	a	a	a
21	4.5f	4.0	4.0	3.3f	3.6f	3.8f	4.0f	4.3f	4.5f	5.1	5.2	5.0	5.3	5.2	5.5	5.2f	5.4	5.5f	5.5f	5.0f	4.8f	4.5fh	3.8f	a
22	4.2f	a	a	3.2f	3.3f	3.8f	4.6p	4.4	5.0f	5.3	5.4	5.0	5.5	5.5	5.3	5.5	5.3	5.5	5.5	a	5.7f	5.5p	5.0	4.0h
23	3.8	3.0	2.5f	2.7	3.5f	3.8	4.0	4.6	5.0p	5.5p	5.0	5.2p	5.5	5.3	5.3	5.1	5.4	5.5	5.5	5.7	5.8	4.6f	3.5f	a
24	3.8f	3.8fs	3.5fs	2.8fh	3.5fh	2.7f	4.3f	4.2f	4.6	5.0	4.7f	5.2	5.1f	4.3	a	5.5	4.5	4.8p	5.5	5.0	4.7f	3.5	a	a
25	a	a	a	a	a	a	a	a	a	6.5	5.3	a	5.4	a	4.8	a	a	a	a	a	a	a	a	a
26	4.0h	a	3.0	3.5f	3.7f	4.0f	4.7f	5.2f	4.5	5.5	5.4	4.5	5.5f	a	a	a	a	a	a	a	a	a	a	a
27	a	a	a	a	4.7f	4.1p	5.1	5.5	(5.0)	6.0	a	6.0	5.0	5.4p	6.0	7.0	6.5	a	a	a	a	a	a	4.0
28	a	4.0f	3.1f	3.2	3.5	3.7	4.3	4.5	a	3.8	5.3	5.4	5.3p	4.9	5.2	5.3	5.5	5.6	5.0f	4.9	4.4	4.0	5.0p	a
29	3.5	3.8p	3.5	3.0	3.3	3.9	3.9	5.0	4.5	5.2p	5.0	5.5	5.3	5.3	5.5p	5.5	5.5	6.0	a	a	a	a	a	a
30	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
31	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
Median	4.0	3.3	3.2	3.0	3.5	4.0	4.5	4.7	5.2	5.3	5.3	5.5	5.5	5.6	5.5	5.6	5.6	5.5	5.6	5.4	5.2	5.1	4.8	4.2
No.	23	21	22	24	26	24	25	25	25	27	26	26	27	27	27	26	26	27	24	24	23	20	21	18

HOURLY VALUES OF h'P2 OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	330	270	270	380	520	b	350	430	350	400	350	330	300	320	310	310	330	310	a	250	270	bs	290	290
2	a	(310)	300	270	320	300	360	350	300	320	340	320	a	290	300	310	290	290	270	250	250	250	270	340
3	300	280	260	270	370	a	330	370	320	340	c	a	320	340	330	310	320	330	280	280	240	240	240	250
4	270	250	250	250	580	250	300	350	330	330	320	300	320	320	320	330	300	270	260	230	250	280	a	300
5	270	330	300	270	250	250	g	320	350	320	320	370	330	330	320	a	a	300	280	270	230	230	230	290
6	260	250	290	(340)	250	280	330	320	320	330	310	320	320	320	320	300	320	300	270	250	260	270	280	250
7	270	a	270	270	270	(280)	300	380	280	350	330	320	330	320	320	320	300	280	270	300	270	270	260	260
8	250	250	250	250	280	g	b	330	350	380	320	200	300	300	290	310	300	300	270	250	a	a	a	a
9	300	270	250	250	240	250	300	380	370	390	320	290	310	340	330	320	310	260	290	290	270	a	270	280
10	270	250	300	230	260	300	370	300	310	350	300	a	2 80	320	330	330	300	280	310	260	250	250	250	250
11	250	250	250	230	250	270	320	270	270	350	320	300	310	300	300	330	330	300	270	270	250	230	240	240
12	240	250	250	230	240	270	370	300	280	330	340	300	300	300	320	300	300	280	250	270	270	250	250	290
13	3.1	300p	280	270	300	270	570p	330	480	470p	470	400	380	320	470	420	400	330	200	250	250	230	270	270
14	a	a	a	a	a	a	a	a	a	a	a	370	370	400	370	340	370	380	290	270	240	230	240	2 60
15	270	290	250	270	250	250	270	270	350	280	320	310	320	320	300	290	300	280	270	250	250	230	230	250
16	250	250	250	230	2 60	270	240	280	320	350	3 60	290	320	320	330	330	330	290	250	240	240	2 30	240	250
17	a	290p	270	260	250	(240)	230	a	340	270	370	330	360	350	340	310	340	350	290	a	(370)	a	260	a
18	a	a	a	a	300p	370	360	520	430	g	620	430	330	400	420	360	380	360	460	370	250	a	320	300
19	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
20	320p	a	a	310	240	320	370	300	400	g	370	470	370	450	310	340	370	320	250	240	300	a	a	a
21	320	270	260	270	270	250	350	400	410	350	340	390	370	380	350	370	350	290	270	240	250	250	310	a
22	320	a	a	250	240	300	370	360	370	360	340	390	350	330	370	330	330	340	300	a	240	250	250	250
23	260	280	250	250	250	270	a	450	320	350	350	350	290	350	340	400	350	320	300	270	240	230	270	a
24	300	230	270	270	260	250	350	380	400	340	390	340	360	370	(400)	300	340	330	280	250	250	240	a	a
25	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
26	230	a	320	250	250	270	330	300	200	340	350	370	340	350	a	a	a	a	a	a	a	a	a	a
27	a	a	a	a	270	250																		

HOURLY VALUES OF  $h_p f^o F_2$  OBSERVED DURING DECEMBER 1956 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	340	u	290	u	u	u	u	u	u	u	u	u	u	u	u	300	u	u	a	290	290	ba	320	310	
2	c	c	340	380	u	u	u	u	u	u	u	u	a	u	u	310	290	300	290	270	270	290	310	350	
3	320	300	300	290	u	a	u	u	u	u	c	c	c	c	c	c	c	c	290	300	280	270	270	280	
4	290	280	270	280	u	u	u	u	u	u	u	u	u	u	u	u	300	280	270	270	270	300	a	330	
5	300	330	300	290	270	270	g	u	u	u	u	u	u	u	u	c	c	300	300	280	270	250	270	320	
6	290	290	320	350	300	u	u	u	u	u	u	u	u	u	u	u	320	310	290	280	290	300	340	280	
7	300	a	300	290	300	u	u	u	u	u	u	u	u	u	u	u	u	300	270	330	290	300	320	310	
8	280	300	280	280	280	g	b	u	u	u	u	u	u	u	u	u	300	310	290	280	e	c	c	a	
9	340	330	290	280	250	u	u	u	u	u	u	u	u	u	u	u	u	270	300	310	300	a	320	320	
10	300	280	320	240	270	u	u	u	u	u	u	c	u	u	u	u	u	290	310	280	280	270	280	300	
11	270	300	300	280	260	u	u	u	u	u	u	300	u	u	u	u	u	u	280	270	250	260	260	a	
12	270	270	280	270	250	u	u	u	u	u	u	u	u	u	u	u	u	280	280	u	270	300	300	320	
13	370	310	310	280	310	290	u	u	u	u	u	u	u	u	u	u	u	u	280	270	290	290	300	300	
14	e	e	e	e	e	e	e	e	e	e	e	u	u	u	u	u	u	u	290	290	270	260	270	300	
15	310	340	300	310	260	250	u	u	u	u	u	u	u	u	u	u	290	300	290	270	270	280	250	270	290
16	300	290	270	260	270	u	u	u	u	u	u	u	u	u	u	u	u	u	270	240	240	250	270	300	
17	a	320	280	280	260	300	250	a	340	u	u	u	u	u	u	u	u	350	q	a	(370)	a	a	a	
18	a	a	a	a	320	u	u	u	u	g	u	u	u	u	u	u	u	u	u	u	a	a	330	350	
19	c	c	c	c	c	c	c	c	c	c	u	a	a	u	u	u	u	u	a	300	280	300	a	a	
20	c	a	a	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	a	a	a	
21	330	290	300	310	280	260	u	u	u	u	u	u	u	u	u	u	u	u	280	260	300	280	330	a	
22	350	c	c	270	250	u	u	u	u	u	u	u	u	u	u	u	u	u	300	a	250	250	290	290	
23	300	320	270	280	280	270	e	u	u	u	u	u	u	u	u	u	u	u	300	290	260	260	320	a	
24	300	280	320	280	280	300	u	u	u	u	u	u	u	u	u	u	u	u	300	290	300	270	c	e	
25	c	c	c	c	c	c	c	c	c	u	u	c	u	a	u	c	u	300	290	290	280	300	280		
26	270	a	u	290	260	u	u	u	u	u	u	u	u	a	a	a	a	a	a	a	a	a	a	a	
27	a	a	a	a	270	u	u	u	u	u	e	u	u	u	u	u	350	250	a	a	c	c	c	300	
28	a	u	300	200	270	u	u	u	c	c	c	c	c	c	c	c	c	240	280	310	300	340	340	a	
29	350	350	370	320	270	u	u	u	u	u	u	u	u	u	u	u	u	290	c	c	c	c	c	e	
30	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	e	
31	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	
Median	300	300	300	280	270	(280)	*	*	*	*	*	*	*	*	*	*	(300)	290	290	280	280	275	300	300	
No.	20	17	21	22	21	8											6	13	21	21	23	20	20	18	

57a.

HOURLY VALUES OF  $(M3000) f^o F_2$  OBSERVED DURING DECEMBER 1956 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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	2.7	3.1	2.9	3.0	(2.5)	b	2.9	2.7	2.8	2.7	3.0	3.1	3.1	3.1	2.8	3.0	2.8	3.1	3.0	3.0	3.2	ba	3.0	3.1
2	2.7	3.0	2.8	3.2	3.1	c	3.0	2.9	3.2	3.2	3.0	3.1	a	3.2	3.1	3.1	3.2	3.0	3.1	3.2	2.9	2.7	2.9	2.8
3	2.8	3.0	2.9	3.2	2.9	a	3.1	3.0	3.2	3.0	c	c	3.0	3.0	3.1	3.1	2.9	2.9	3.1	3.0	3.0	3.0	2.9	2.9
4	3.1	3.0	2.9	3.2	3.6	3.5	3.1	2.9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.1	3.4	3.2	3.1	3.1	a	2.9
5	2.8	2.9	2.9	3.0	3.2	3.2	g	3.1	2.9	3.0	3.1	3.0	3.0	3.0	3.0	c	3.1	3.1	3.1	3.2	3.2	3.1	3.0	2.7
6	3.1	2.9	2.9	2.7	2.9	3.1	3.1	3.2	3.1	2.8	3.1	3.1	3.1	3.1	3.0	3.1	2.9	2.9	3.1	3.2	2.8	2.7	2.7	3.0
7	e	e	e	e	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
8	3.0	3.0	3.1	3.2	3.4	g	b	2.9	3.0	3.0	3.0	3.2	3.0	3.1	3.0	3.0	3.1	2.9	3.0	3.0	c	c	c	a
9	2.7	2.9	2.9	3.1	3.4	3.1	3.2	2.9	2.7	2.7	3.1	3.2	3.0	3.0	2.9	3.0	2.9	3.1	3.0	2.9	2.9	a	2.6	2.9
10	2.8	3.0	2.9	3.3	3.2	3.2	2.8	3.1	3.1	2.9	3.1	e	3.3	3.1	3.0	3.0	3.2	3.1	2.7	3.1	3.0	3.0	2.8	2.6
11	3.0	2.8	2.8	3.0	3.2	3.1	3.1	3.3	3.4	3.1	3.0	3.1	3.1	3.2	3.0	3.0	3.0	3.2	3.1	3.2	3.2	3.2	3.3	a
12	3.1	3.1	3.1	3.2	3.4	3.2	2.9	3.1	3.2	3.1	3.1	3.1	3.1	3.0	3.1	3.1	3.1	3.1	3.1	(2.8)	2.7	2.9	2.8	2.8
13	2.6	2.9	2.9	3.0	3.0	3.0	c	3.1	2.6	2.5	2.6	2.8	2.9	5.2	2.7	2.7	2.8	3.0	3.1	3.2	3.0	3.0	2.9	3.1
14	3.0	3.0	c	c	c	c	c	c	c	c	c	2.8	2.9	2.7	2.9	3.0	2.9	2.9	3.1	3.0	3.0	3.1	3.0	2.8
15	2.7	2.7	2.9	2.9	3.1	3.4	3.3	3.4	2.7	3.3	3.0	3.2	2.8	3.0	3.0	3.1	3.0	3.1	3.1	3.2	3.3	3.2	2.8	2.8
16	3.0	3.3	3.2	3.1	3.3	3.1	2.9	3.3	3.1	2.8	3.0	3.3	3.2	3.0	3.0	3.0	2.9	3.2	3.2	3.2	3.1	3.2	3.2	2.9
17	a	3.0	3.3	3.2	3.5	3.0	3.3	a	2.9	3.2	3.0	2.9	3.0	2.9	3.0	3.1	2.8	2.7	q	a	a	a	2.6	a
18	a	a	a	a	2.9	2.7	2.9	2.4	2.7	g	(2.3)	2.6	2.7	2.6	2.6	2.7	2.8	2.9	2.5	2.8	2.5	a	2.8	2.7
19	c	c	c	c	c	c	c	c	c	c	2.9	a	a	3.1	2.8	2.9	2.7	2.9	a	3.1	3.0	2.9	a	a
20	(3.0)	a	a	2.9	3.1	3.1	2.8	2.9	2.7	g	2.8	2.6	2.9	2.6	3.2	2.9	2.7	2.8	3.4	3.2	2.9	a	a	a
21	2.8	3.4	3.0	3.0	3.2	3.1	3.1	2.9	2.5	2.9	3.1	2.7	2.9	2.8	2.9	2.8	2.9	3.1	3.2	3.1	2.9	3.0	2.8	a
22	2.7	e	c	3.2	3.3	3.1	2.9	2.7	2.8	2.8	3.0	2.8	3.0	2.8	2.9	3.1	3.0	2.9	3.2	a	3.3	3.1	2.9	2.9
23	2.6	2.9	3.0	3.1	3.1	3.4	3.0	2.5	3.2	2.9	3.0	2.9	3.4	2.9	3.0	2.7	2.9	3.1	3.0	3.1	3.1	3.1	2.9	a
24	3.0	2.9	2.9	3.3	3.1	3.0	2.9	2.8	2.8	2.9	2.7	3.1	2.9	3.0	c	2.6	2.9	3.1	3.1	3.0	3.1	3.1	c	c
25	c	c	c	c	c	c	c	c	c	3.1	3.1	c	2.9	a	3.0	c	c	3.1	3.1	3.0	3.0	2.9	2.9	3.0
26	3.0	a	3.0	2.8	3.1	3.1	3.0	3.2	3.2	3.0	2.9	2.8	3.0	a	a	a	a	a	a	a	a	a	a	a
27	a	a	a	a	3.2	3.2	2.9	(3.2)	3.0	c	3.0	3.1	2.9	2.6	2.8	2.8	2.9	3.3	3.2	2.9	2.9	2.8	2.9	a
28	a	3.1	3.1	3.2	3.2	2.6	2.8	3.0	c	2.8	2.9	2.9	2.8	2.6	2.8	2.8	2.9	3.3	3.2	2.9	2.9	2.8	2.9	a
29	2.8	2.9	2.7	2.9	3.2	3.3	2.8	3.1	3.2	3.0	2.9	3.3	3.0	3.0	2.9	3.1	3.1	3.1	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	c	c
31	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
Median	2.8	3.0	2.9	3.1	3.2	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	3.1	3.1	3.1	3.0			

HOURLY VALUES OF  $f_oF_1$  OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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				3.4	3.5p	b	3.7	4.0	4.2	4.2	4.4	4.3	4.4	4.3	4.1	4.1	4.0	3.5	a					
2					3.4	3.6	4.2	4.0	4.3	4.3	4.4	4.4	e	4.4	4.2	4.3	4.1	3.8	3.5p					
3					3.6p	4.1p	3.7	4.0	4.1	4.3	c	c	3.8	4.4	4.3	4.1	4.0	3.8	3.6	3.0				
4					3.4	3.7	3.8	4.0	4.1	4.3	4.6	4.4	4.4	4.5	4.3	4.2	4.0	4.0	3.7	2.8p				
5							4.0	4.0	4.2	4.1	4.4	4.4	4.4	4.3	4.3	e	c	3.8	3.6	2.9h				
6						3.2	3.8	4.0	4.3	4.3	4.4	4.5	4.4	4.3	4.4	4.4	4.1	3.9	3.6	2.9p				
7					2.1p	3.6	3.7	4.0	4.2	4.3	4.4	4.3	4.7	4.5	4.5	4.2	4.2	3.8	3.6	3.2				
8					(2.6)	3.9	b	4.2	4.5	4.3	4.2f	4.3	4.5	4.3	4.0	4.0	4.0	3.8	(3.1)	2.2p				
9					1	3.4	3.9	4.1	4.4	4.4	4.5	4.6	4.3	4.4	4.4	4.2	4.2	3.9	3.5	3.0	2.5			
10						3.7	4.0	4.0	4.3	4.2	4.4	c	4.4	4.6p	4.5	4.3	4.1	3.9	3.7	3.0				
11						3.8p	4.0	3.7	4.3	4.3	4.5	4.7	4.6	4.8	4.3	5.1	4.4	3.8	3.6					
12					2.2p	3.0p	4.1	3.9	4.2	4.8	4.2	4.4	4.5	4.5	4.5	4.5	3.7	4.0	3.5					
13							3.9	4.0	4.1	4.1	4.1	4.1	4.5	4.5	4.4	4.2	3.5	4.0	3.5	2.9p				
14					c	c	c	c	c	c	c	4.5	4.2p	4.3	4.1	4.1	4.0	3.9	3.0	3.0				
15						3.2	3.8	3.9	4.2	4.2	4.5	4.5	4.3	4.5	4.3	4.3	4.0	4.0	3.9	3.0				
16						3.0	3.8p	4.3p	4.4	4.3	4.4	4.4	4.5	4.5	4.4	4.4	4.2	3.9	3.5					
17					2.5p	q	(2.7)	a	a	4.2	4.2	4.5	4.5p	4.5p	4.3	4.2	4.0	a	a					
18						3.5	3.7	3.8	4.0	4.0	4.1	4.2	4.3	4.3	4.0f	4.0	4.0	3.6	3.6h	3.4				
19					c	c	c	c	c	c	a	a	a	(4.5)	4.5	4.2	4.4p	3.9	a	a				
20						3.5f	3.7	4.0	4.0	c	4.2	4.5	4.4	4.4	4.1f	4.0	4.0	4.0f	3.8					
21					(2.5)	(3.0)	(3.8f)	3.9f	4.0f	4.2	4.3	4.4	4.3	4.4	4.3	4.0f	4.0f	4.0f	3.5f	2.7f				
22						3.3f	4.0	3.8f	4.0	4.2	4.3	4.3	4.4	4.4	4.3	4.3	4.0	3.9	3.5	a				
23						3.1p	5.7f	4.0f	4.2f	4.2	4.3	4.4	4.5	4.3	4.4	4.4	4.1	4.5	3.7	3.2h				
24							3.8	3.8f	4.0	4.3f	4.2	4.4f	4.4	3.8	4.3	4.0	3.4	(3.3)	(3.8)	c				
25					c	c	c	c	c	4.5	4.4	c	4.4	s	3.7	c	c	3.7p	3.4					
26						3.5f	3.8f	4.0f	3.5f	4.2	4.4	4.0	4.2	5.2	4.2p	a	a	a	a	a				
27					3.0f	3.5	3.9	a	a	4.3	c	4.3	3.8	4.0	4.5	4.3	4.0	a	a	c				
28						3.5	3.8	4.0	e	3.5	4.3	4.2	4.3	4.3	4.2	4.2	4.0	3.9	3.5f					
29						q	3.4	4.0	3.8	4.3	4.3	4.4	4.3	4.3	4.3p	4.3	4.4	3.8	c	c				
30					c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c				
31					c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c				
Median				*	2.8	3.5	3.8	4.0	4.2	4.3	4.4	4.4	4.4	4.4	4.3	4.2	4.0	3.9	3.6	3.0	*			
No.					10	20	25	24	23	26	25	25	27	28	29	26	26	27	23	14				

HOURLY VALUES OF  $h'F_1$  OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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				250	240	b	240	230	220	220	210	230	220	200	210	220	c	a						
2					260	240	240	230	230	230	220	200	s	230	200	200	230	230	250					
3					250	250	250	230	230	220	c	c	220	210	210	200	210	240	240	250				
4					220	220	220	200	200	200	200	190	200	180	200	200	210	220	230	220				
5							240	230	230	220	200	200	200	200	190	e	e	210	230	240				
6						250	250	280	200	220	230	220	210	200	220	210	200	230	240	240				
7					220	230	220	210	210	200	210	210	200	210	200	200	220	220	220	290				
8					240	230	b	200	210	200	190	190	220	180	200	200	210	250	q	230				
9					230	250	240	240	220	230	240	230	200	220	220	220	220	220	220	260	270			
10						240	230	220	220	220	210	e	200	190	220	220	230	240	230	240				
11						230	220	220	240	190	220	200	200	200	200	200	200	220	230					
12					320	330	230	230	220	200	200	200	230	200	220	200	270	230	200					
13							240	230	210	200	220	220	230	210	200	210	220	c	220	e				
14							e	c	c	c	c	320	220	220	200	220	230	240	230	240				
15						240	230	230	230	(220)	210	200	200	230	210	200	210	200	240	240				
16						(230)	230	260	240	200	210	220	200	200	190	210	200	230	230					
17					240	q	210	a	a	220	200	210	210	200	200	200	200	270	a	a				
18						100	240	240	240	240	220	220	230	180	180	250p	220	250	240	c				
19							c	c	c	c	a	a	a	250	320	240	270	270	a	a				
20						250	230	230	240	(230)	240	200	200	220	200	230	220	230	230					
21					250	230	220	200	250	220	240	200	210	220	200	200	210	200	190	220				
22						210	200	200	200	200	220	220	220	210	220	220	220	230	230	a				
23						230	220	200	200	200	200	210	200	200	200	250	240	240	250	240				
24							230	220	220	220	220	200	200	210	200	230	250	a	a	c				
25						c	c	c	c	c	200	200	c	240	(200)	200	c	c	210	220				
26						230	230	270	220	200	210	200	230	210	220	s	s	s	s	s				
27					230	230	230	a	a	c	c	200	230	200	240	(220)	200	a	a	c				
28						220	230	220	e	220	230	220	220	220	220	(250)	220	220	240					
29						q	230	240	230	200	210	200	200	190	200	200	230	230	c	c				
30						c	c	c	c	c	c	c	c	c	c	c	c	c	c	c				
31						c	c	c	c	c	c	c	c	c	c	c	c	c	c	c				
Median				*	240	230	230	230	220	220	210	200	210	210	200	210	220	230	230	240	*			
No.					11	20	25	24	23	26	25	25	27	29	29	26	26	24	21	12				

HOURLY VALUES OF  $f_oE$  OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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				1.8	2.1	b	2.6	2.7	3.1	3.1	3.1	3.0	3.0	3.0	3.1	3.0	3.0	2.8	a	1.8	a			
2				a	2.0	2.1	2.5	2.8	2.9	3.0	3.1	3.3	a	3.4p	3.2p	3.1	2.9	2.7	2.1	2.0	a			
3				b	1.8	2.9	2.5	2.9	3.0	3.1	c	c	c	3.4p	3.3	3.2	3.0	2.8	2.3	2.0	a			
4				b	1.7	2.0	2.7	2.8	2.9	3.2	3.2	3.1	3.3p	a	3.5	3.1	2.9	2.7	2.4	2.0	a			
5				a	a	2.1f	2.2	2.6	3.0	3.0	3.2	3.1	3.2p	3.3	3.0	c	c	2.5	2.4	1.8	a			
6				a	2.0	2.4	2.5	2.9	3.3	3.2	3.4p	3.4p	3.2	3.2	3.1	3.2	2.9	2.7	2.1	1.5	1.7f			
7				a	a	2.5	2.6f	2.7	2.9	3.1	3.4	3.4p	3.3	3.2	3.3	3.1	3.0	2.5	2.5	2.4	1.8			
8				b	1.8	2.6	b	3.0	3.3	3.1	3.0	3.0	3.3	3.2	3.0	3.0	3.0	2.6	2.1	1.8	a			
9				1.3	1.7f	2.0f	2.7	3.0	3.0	3.0	c	c	c	c	3.2p	3.1	3.0	2.8	2.4	2.0	1.9f			
10				a	2.1	2.6	2.9	2.5	3.0	3.0	3.4p	c	2.9	2.3	3.4p	3.1	3.1	2.8	2.3	1.8	a			
11				a	1.8	2.8	2.7p	3.0	3.3	3.2	3.7	3.6	3.7	3.8	2.9	3.5	3.2	2.7	2.4	2.1h	1.4			
12				b	1.8h	1.9h	2.6	2.9	3.0	3.6	3.1	c	3.6	3.5	3.5	3.3	3.2	2.8	2.6h	1.9f	1.5h			
13				a	2.1	2.5	2.7	3.1	3.1	3.1	3.3	3.4	3.1	3.0	3.2	b	2.5	2.7	2.4	2.0	a			
14				c	c	c	c	c	c	c	c	3.4	3.2p	3.0	3.1	3.0	2.9	2.5	2.2	1.8	a			
15				b	1.7	2.1	2.5	2.7	2.9	3.0	3.1	3.1	3.0	3.1	3.1	3.1	3.0	2.6	2.4	2.0fn	a			
16				a	1.3	2.1	2.2	2.9	3.0	3.1	3.3	3.3	3.2	3.5	3.4	3.3	3.0	2.6	2.7	1.8	a			
17				a	a	(1.7)	b	b	3.0	3.1	b	(3.3)	3.5	3.2	3.2	3.0	3.0	2.7	a	a	a			
18				a	a	2.8	2.4	2.6	3.0	3.0	3.1	3.1	3.0	3.1	3.0	2.5	3.0	2.5	2.4	a	a			
19				c	c	c	c	c	c	c	3.5	b	b	3.2	b	3.5	3.0	2.8	2.4	2.0	a			
20				a	1.8f	2.3	2.5	2.7	b	3.0	3.1	3.2	b	b	b	3.1	2.4	2.6	a	2.0	a			
21				a	a	2.1	2.5	2.8	3.0f	3.0	3.0	3.2	3.3	3.2	3.3	2.7	2.8	2.5	2.2	1.8f	a			
22				a	1.8f	2.1	2.5	2.5	2.9	3.0	3.0	3.0	3.0	3.0	3.2f	3.1	2.9	2.7	2.4	2.0	1.7			
23				a	1.8f	2.0h	2.5	2.8	2.9	3.0	3.2	3.1	3.2	3.3	3.2	3.1	2.9	2.7	2.4	1.8	(1.6)			
24				a	1.9f	2.3f	2.5	2.7	2.8	3.1	3.2	3.3	3.3	3.0	3.2p	3.1	2.4	2.3	2.1	c	a			
25				c	c	e	c	e	e	3.1	3.1	e	3.0	a	2.7	c	c	2.5	2.4	2.1	1.5			
26				a	a	1.9	2.4	2.8	2.9	c	a	3.4	3.0	3.0	2.8f	2.4	2.2f	(1.6)	a	a	a			
27				(1.5)	2.0	2.4	2.4	2.8	b	b	c	c	3.0	b	3.3	b	3.2	3.0	2.5	c	c			
28				a	(2.1)	(2.2)	b	2.7	c	2.8	3.5	3.4	3.5	3.3	3.3	3.2	3.0	2.7	a	a	a			
29				a	b	2.5	2.5	2.5	2.7	(2.9)	2.9	2.7	3.5	3.3	3.3	3.0	2.8	2.6	c	c	c			
30				c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c			
31				c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c			
Median				*	1.8	2.2	2.5	2.8	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.0	2.7	2.4	2.0	1.6			
No.					19	25	23	25	23	25	23	22	24	24	27	25	27	29	23	22	9			

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HOURLY VALUES OF  $h' E$  OBSERVED DURING DECEMBER 1954 AT MACQUARIE ISLAND

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

157.5°E Mean Time

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				120	110	b	100	110	100	100	100	100	100	110	110	110	c	c	a	130	a			
2				a	a	120	120	110	100	110	100	100	a	110	110	110	120	120	120	130	a			
3				b	100	110	100	100	110	110	c	c	120	110	120	110	120	120	120	130	a			
4				b	140	110	110	100	100	100	100	100	100	100	100	100	100	100	110	120	130			
5				a	a	100	100	120	100	100	100	100	100	100	100	c	c	100	110	120	a			
6				a	100	100	100	100	100	100	100	100	100	100	100	100	110	110	120	120	(150)			
7				a	a	100	100	100	100	100	100	100	100	100	100	100	100	100	110	120	140			
8				b	c	c	b	100	100	100	100	100	100	100	100	100	100	110	110	130	e			
9				130	120	120	120	110	110	100	100	100	100	100	100	110	110	120	120	120	130			
10				a	100	120	110	110	110	110	100	c	e	110	110	120	120	120	120	130	a			
11				a	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	120		
12				b	150	120	120	120	100	100	100	100	100	100	100	100	100	110	110	120	130			
13				a	100	100	100	100	100	100	100	100	100	100	100	b	100	100	100	100	a			
14				c	c	c	c	c	c	c	c	c	100	100	100	100	100	110	110	130	a			
15				b	b	130	120	110	110	100	100	100	100	100	100	100	100	100	120	110	a			
16				a	120	120	120	110	100	100	100	100	100	100	100	100	100	110	110	120	a			
17				b	a	100	b	b	100	100	b	100	100	100	100	100	100	100	100	a	a			
18				a	a	100	100	100	100	100	100	100	100	100	100	100	100	100	110	a	a			
19				c	c	c	c	c	c	c	c	100	b	b	100	b	100	100	100	100	110	a		
20				a	100	100	100	100	b	100	100	100	b	b	b	100	100	110	a	110	a			
21				a	a	100	100	100	100	100	100	100	100	100	100	100	110	100	100	100	a			
22				a	100	110	110	110	100	100	100	100	100	100	110	110	100	110	130	120	120			
23				a	100	110	110	110	100	100	100	100	110	110	100	110	110	110	120	120	a			
24				a	100	100	100	100	100	110	100	100	100	100	110	110	110	110	120	e	a			
25				c	c	c	c	c	e	100	100	c	110	(110)	110	c	c	110	120	120	150			
26				a	a	100	100	100	100	c	(110)	100	100	100	110	110	110	120	a	a	a			
27				100	100	120	110	110	b	b	c	e	110	b	100	b	100	(120)	110	c	c			
28				a	a	a	b	130	c	120	120	130	120	120	120	120	120	130	a	a	a			
29				a	b	100	100	100	100	c	120	110	110	100	110	120	120	110	c	c	c			
30				c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c			
31				c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c			
Median				*	100	100	100	100	100	100	100	100	100	100	100	100	100	110	110	120	130			
No.					15	23	23	25	23	24	25	24	25	27	27	25	26	28	23	22	8			

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