

Summary of Site Record, Mount McKinlay, New South Wales

August 27-December 31, 1964

This summary collects data useful for evaluating observing conditions on Mt. McKinlay, ^{South Australia} ~~New South Wales~~. The data is from observations by M. Piestrup and Y. Nora under the auspices of California's Statewide University Committee on Facilities for Optical Astronomy; and it includes the record for Aug. 27 - Dec. 31, 1964.

Table I and Figure Ia summarize the temperature record for the period. Hourly temperature readings were recorded at 5 feet and 35 feet above the ground. Temperature readings for the dark hours (one hour after sunset to one hour before sunrise) were averaged over half month intervals. Maximum and minimum temperatures reached each night were also averaged over the same periods. Little temperature difference is noted between the 5 and 35 ft. altitudes, but the latter averages slightly warmer. The average night time range of temperature is 7°F.

Table II and Figure Ib summarize the effect of cloud cover on the suitability of the night sky for observation. Night hours when no more than 40% of the sky was covered by anything thicker than cirrus were classified as useable. Hours when the sky was completely clear were classified as photometric. One hour was eliminated from both categories because of a dust storm. 70.9% of 1137.6 dark hours were useable. 54.6% were photometric.

Tables III and IV and Figures IIa, IIb, and IIc describe wind conditions. Hourly wind speeds were averaged for all dark hours over the half month intervals. Maximum and minimum wind speeds for each night were averaged over the same periods. Table IV and Figure IIc show the averages of the hourly record of night wind directions. Figure

Moore, McKinlay

IIb is a comparison of the wind speed during useable night hours with the average for all night hours. The wind record is incomplete for Sept. 9, Oct. 10, Nov. 30, Dec. 9, Dec. 31.

Astronomical seeing conditions described in terms of stellar image size are summarized in Table V and Figure II d. The quality of the seeing was measured with a double beam telescope (D.B.T.) and an image motion monitor (A.S.M.). The record for the former covers 92.0% of all useable night hours and for the latter, 53%. The worse seeing recorded by the A.S.M. is due considerably to an addition of a wind component to the measurement of motion.

Prepared by David C. Taylor 1-18-64

Table III and Figure II summarize the effect of cloud cover on the suitability of the night sky for observation. Night hours were classified as usable if the sky was covered by anything other than cirrus clouds. Hours when the sky was completely clear were classified as photometric. One hour was eliminated from both categories because of a dust storm. 70.7% of 1955.8 total hours were usable, 18.6% were photometric.

Tables III and IV and Figures IIa, IIb, and IIc describe the conditions. Hourly wind speeds were averaged for all dark hours over the half month intervals. Monthly sunspot data were averaged for each night hour averaged over the same periods. Table IV and Figure IIc show the averages of the hourly speed of night wind. The monthly

Mount McKinley

Fahrenheit Degrees

Figure Ia - Temperature Record

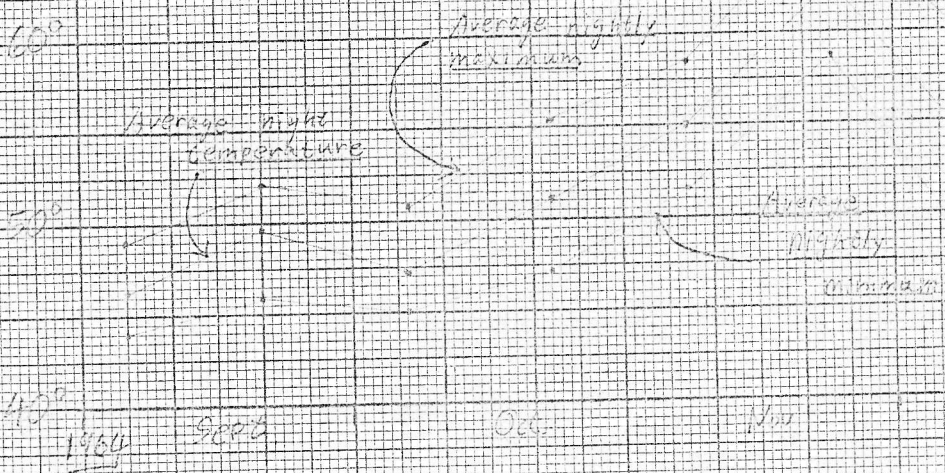
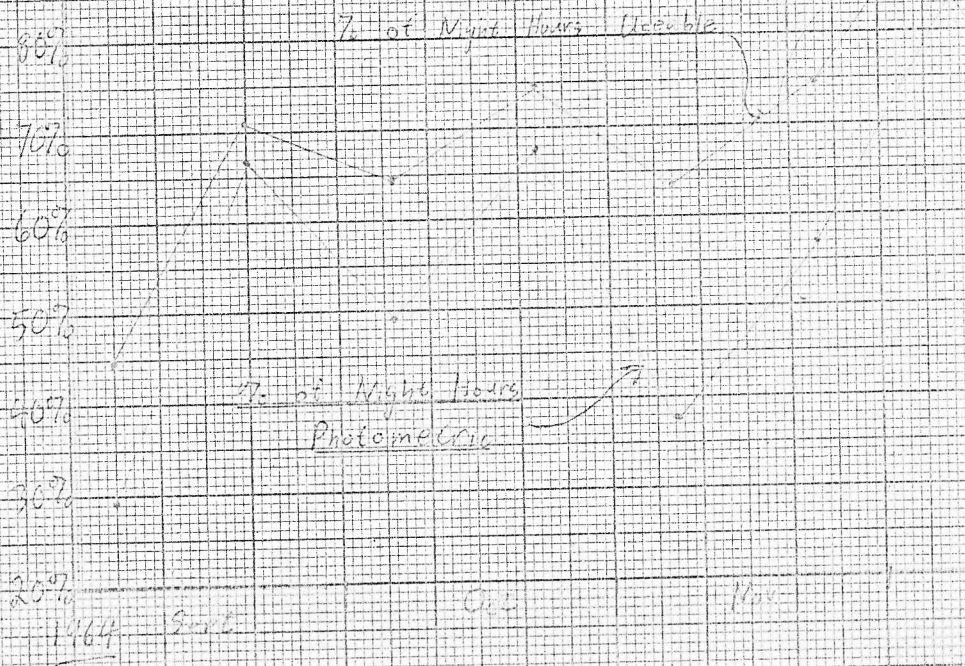


Figure Ib - Cloud Cover



Mount McKinlay

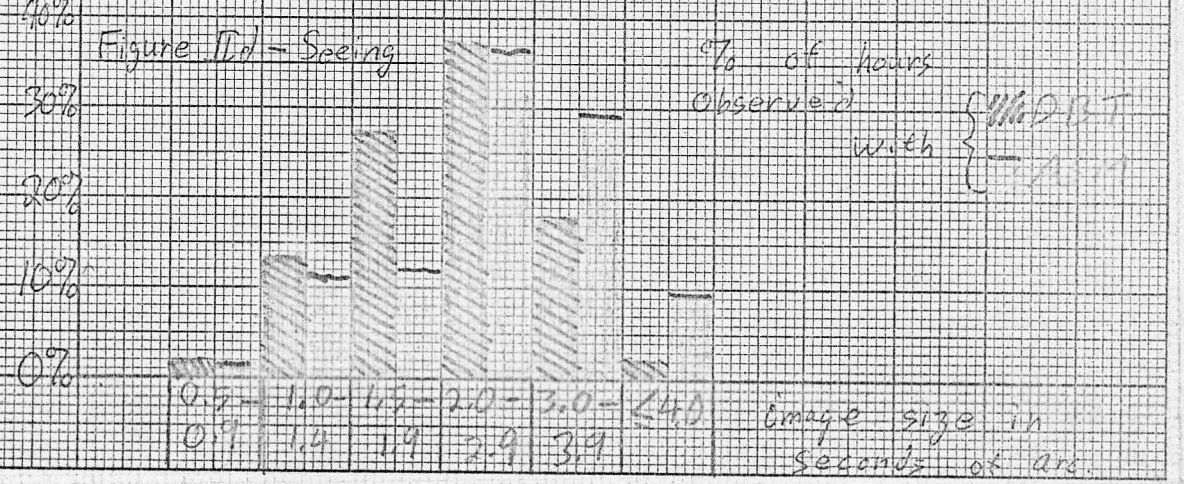
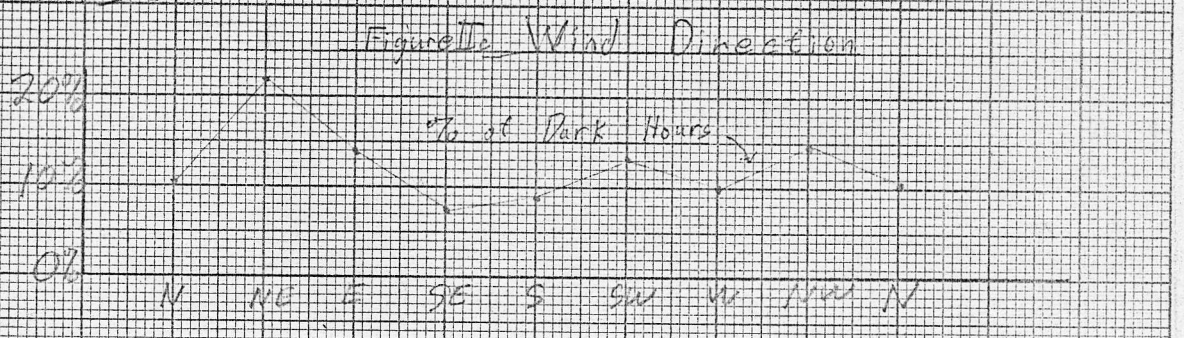
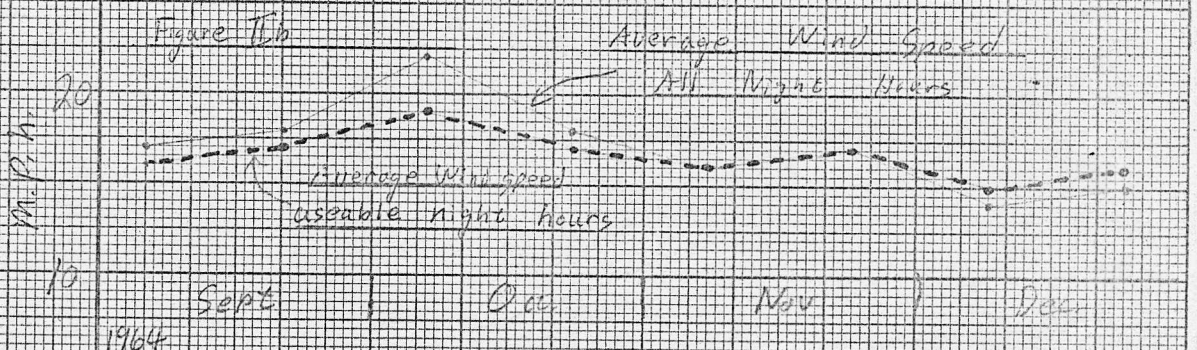
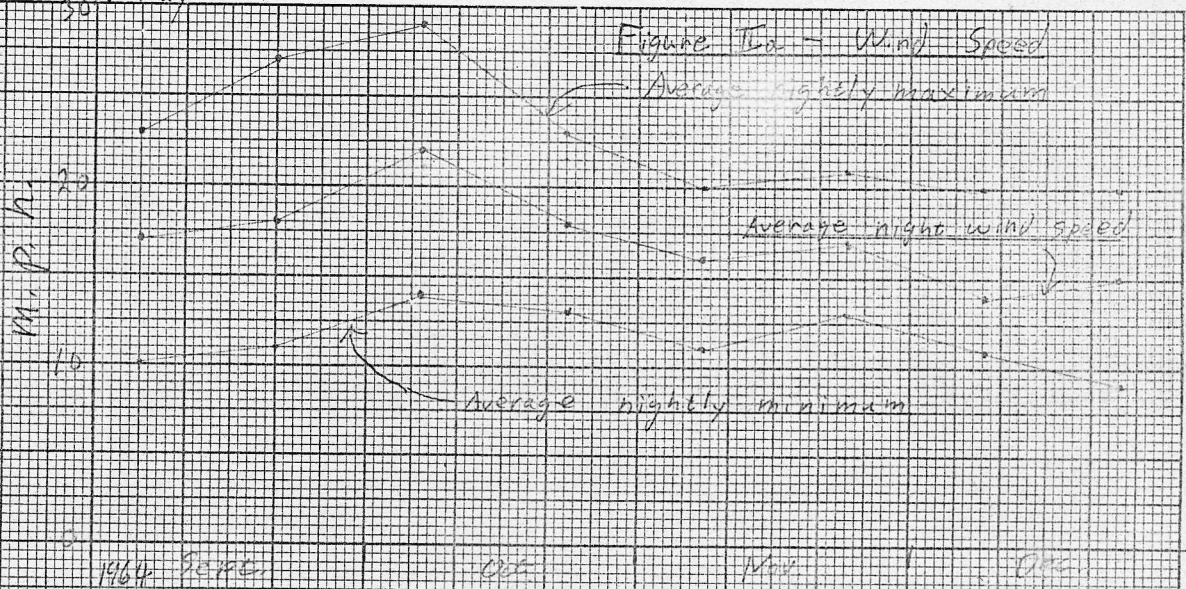


Table I - Temperature Record

$\frac{1}{2}$ month intervals - 1964	measured 5 ft. above ground			measured 35 ft. above ground		
	ave night temp	ave nightly max	ave nightly min.	ave night temp.	ave nightly max.	ave nightly mid.
Aug 27 - Sept 11	46.3	49.0	44.0	46.3	48.2	44.5
Sept 12 - Sept 27	49.8	52.1	45.8	49.9	52.8	46.4
Sept 28 - Oct 13	47.4	50.6	45.0	47.5	50.3	45.2
Oct 14 - Oct 29	51.1	55.3	47.2	51.8	55.1	48.3
Oct 30 - Nov 14	55.0	58.5	51.5	55.1	58.3	51.4
Nov 15 - Nov 30	62.7	66.6	58.8	62.8	66.9	58.8
Dec 1 - Dec 15	54.0	59.8	48.3	54.4	59.9	48.5
Dec 16 - Dec 31	60.3	64.3	57.4	60.3	64.8	58.0

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Table II - Cloudiness Record

	1/2 month intervals - 1964	Dark hours per night	Dark Hrs. useable	Dark Hrs. Photometric
5	Aug 27 - Sept 11	10.40	44.8%	29.2%
30	Sept 12 - Sept 27	10.00	70.6%	66.7%
	Sept 28 - Oct 13	9.55	64.9%	44.1%
31	Oct 14 - Oct 29	8.94	74.7%	67.7%
	Oct 30 - Nov 14	8.55	63.4%	37.8%
30	Nov 15 - Nov 30	8.23	74.7%	57.0%
	Dec 1 - Dec 15	8.03	96.0%	83.5%
31	Dec 16 - Dec 31	7.90	82.3%	61.8%

$$\begin{array}{r} 8371.0 \\ - 11.4 \\ \hline 8359.6 \end{array}$$

$$\begin{array}{r} 8115.2 \\ - 50.4 \\ \hline 8064.8 \end{array}$$

Table III - Wind Speed

1/2 month intervals - 1964	ave. night wind speed	ave. nightly max.	ave. nightly min.	ave speed useable hours
Aug 27 - Sept 11	17 m.p.h.	23 m.p.h.	16 m.p.h.	16 m.p.h.
Sept 12 - Sept 27	18	27	11	17
Sept 28 - Oct 13	22	29	14	19
Oct 14 - Oct 29	18	23	13	17
Oct 30 - Nov 14	16	20	11	16
Nov 15 - Nov 30	17	21	13	17
Dec 1 - Dec 15	14	20	11	15
Dec 16 - Dec 31	15	20	9	16

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Table III Wind Direction

1/2 month intervals - 1964	Direction — % of Night Hours							
	N	NE	E	SE	S	SW	W	NW
Aug 27 - Sept 11	9.6%	28.9%	21.1%	1.2%	3.6%	28.3%	0.6%	6.6%
Sept 12 - Sept 27	<u>10.4</u> 10.0	<u>23.6</u> 26.6	<u>4.9</u> 13.1	<u>1.1</u> 1.2	<u>9.3</u> 6.4	<u>7.1</u> 18.0	<u>12.1</u> 6.3	<u>31.3</u> 19.0
Sept 28 - Oct 13	6.3	8.8	1.9	0.6	6.3	17.6	29.6	28.9
Oct 14 - Oct 29	<u>19.1</u>	25.5	5.1	8.3	17.2	7.0	3.8	13.4
Oct 30 - Nov 14	5.2	20.9	26.1	15.0	7.8	7.2	3.9	13.7
Nov 15 - Nov 30	<u>20.3</u> 12.5	<u>18.9</u> 19.9	<u>18.9</u> 22.5	<u>6.3</u> 10.7	<u>4.9</u> 8.8	<u>11.9</u> 4.6	<u>3.7</u> 5.8	<u>11.2</u> 12.1
Dec 1 - Dec 15	1.5	23.5	21.2	27.3	16.7	9.1	0.7	0.0
Dec 16 - Dec 31	<u>7.0</u> 9.2	<u>23.3</u> 23.4	<u>15.5</u> 19.4	<u>6.2</u> 16.8	<u>5.4</u> 11.0	<u>20.9</u> 15.0	<u>20.9</u> 14.0	<u>0.8</u> 0.5
Total Record	10.1	21.7	13.9	7.7	8.8	13.6	9.9	14.3

Table IV Seeing Record

Diameter of star images	0.5-	1.0-	1.5-	2.0-	3.0-	≤ 4.0
	0.9	1.4	1.9	2.4	3.9	
% of hours observed with D.B.T.	2.1%	13.3%	27.4%	37.3%	17.9%	2.0%
% of hours observed with A.S.M.	1.3%	11.1%	12.0%	36.5%	29.3%	9.8%

Summary of Site Record, Mount McKinlay, ~~New South Wales~~
Jan. 1 - March 31, 1965

For further explanation of graphs and tables see 1964 Summary.

Table I Temperature Record

1965	average	night	temperature	
	5 feet above ground	35 feet above ground	ave. nightly maximum	ave. nightly minimum
Jan 1 - Jan 15	63.6°F	63.5°F	68.6°F	58.6°F
Jan 16 - Jan 31	65.1°F	64.9°F	70.7°F	60.0°F
Feb 1 - Feb 14	65.9°F	66.4°F	70.5°F	61.0°F
Feb 15 - Feb 28	72.0°F	72.3°F	76.7°F	67.6°F
March 1 - March 16	65.3°F	65.6°F	70.2°F	61.1°F
March 17 - March 31	60.4°F	60.9°F	64.9°F	55.1°F

Table II Cloudiness Record

1965	% of night hours	
	photometric	useable
Jan 1 - Jan 15	84.4%	97.0%
Jan 16 - Jan 31	81.9%	90.3%
Feb 1 - Feb 14	76.8%	92.0%
Feb 15 - Feb 28	38.7%	78.8%
March 1 - March 16	47.7%	87.6%
March 17 - March 31	65.6%	80.4%

Table III Wind Speed Record

1965	average speed	average speed	ave. nightly	ave. nightly
	all night hours	useable night hrs.	maximum	minimum
Jan 1 - Jan 15	18 m.p.h.	18 m.p.h.	24 m.p.h.	13 m.p.h.
Jan 16 - Jan 31	18	17	22	12
Feb 1 - Feb 14	16	17	20	12
Feb 15 - Feb 28	16	17	21	11
March 1 - March 16	16	16	22	11
March 17 - March 31	15	15	19	9

Table IV Wind Direction Record

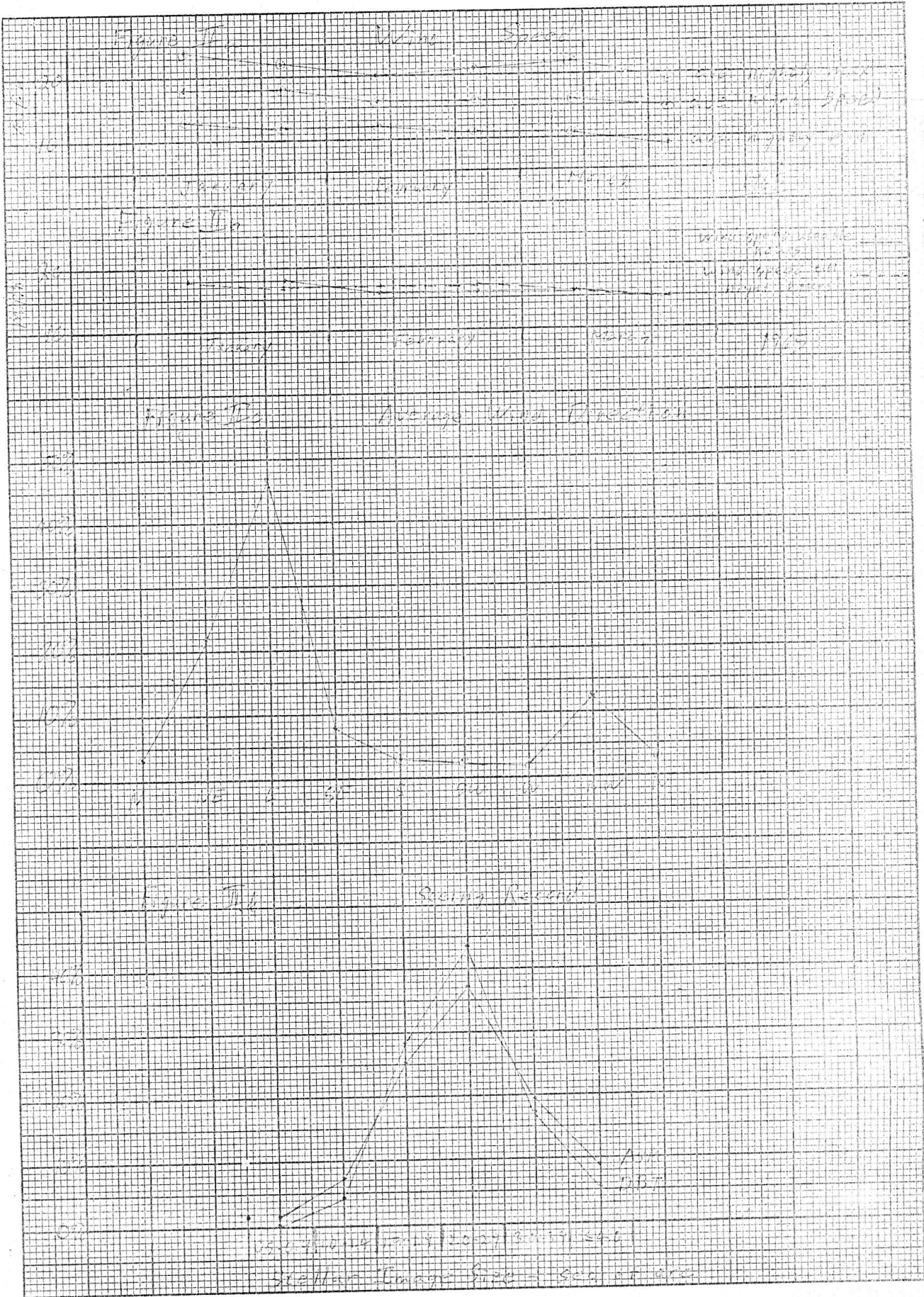
1965	Direction - % of night hours							
	N	NE	E	SE	S	SW	W	NW
Jan 1 - Jan 15	0.0%	42.4%	37.9%	12.1%	2.2%	0.8%	0.0%	4.5%
Jan 16 - Jan 31	0.7	33.1	37.9	13.1	0.7	2.8	2.1	9.7
Feb 1 - Feb 14	4.4	34.1	44.4	8.9	1.5	0.0	0.0	6.7
Feb 15 - Feb 28	4.4	7.9	59.0	3.6	0.7	0.7	0.0	24.5
March 1 - March 16	7.8	14.3	40.7	6.0	7.2	3.6	4.8	15.6
March 17 - March 31	0.6	3.1	61.1	4.9	4.9	6.8	4.3	14.2
3 month ave.	3.0%	21.6%	47.0%	8.0%	3.1%	2.6%	2.0%	12.7%

Table V

Seeing Record

	Stellar Image Size - % of night hours observed					
	0.5 - 0.9	1.0 - 1.4	1.5 - 1.9	2.0 - 2.9	3.0 - 3.9	≥ 4.0
ASM Record	1.6%	7.4%	25.2%	37.3%	19.4%	9.0%
D.B.T. Record	0.1%	4.2%	28.4%	43.8%	17.6%	5.8%

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Summary of Site Record, Mount McKinlay, South Australia
April 1 - May 31, 1965

For further explanation of graphs and tables see 1964 summary.

Table I Temperature Record

1965	Average night temperature		ave. nightly maximum	ave. nightly minimum
	5 feet above ground	35 feet above ground		
April 1 - April 15	53.4°F	54.2°F	57.7°F	49.7°F
April 16 - April 30	47.4	47.6	49.6	42.8
May 1 - May 15	51.5	52.7	55.0	49.5
May 16 - May 31	44.3	44.8	47.4	42.0

Table II Cloudiness Record

1965	% of night hours photometric	% of night hours useable
	April 1 - April 15	64.2%
April 16 - April 30	60.6	88.2
May 1 - May 15	35.4	64.4
May 16 - May 31	22.8	62.2

Table III Wind Speed Record

1965	average speed all night hours	average speed useable night hrs.	ave. nightly maximum	ave. nightly minimum
	April 1 - April 15	16 m.p.h.	16 m.p.h.	21 m.p.h.
April 16 - April 30	16	15	20	11
May 1 - May 15	14	14	19	9
May 16 - May 31	13	13	19	8

Table IV Wind Direction Record

Direction - % of night hours

1965	N	NE	E	SE	S	SW	W	NW
	April 1 - April 15	0.6%	1.8%	52.2%	4.3%	8.7%	6.2%	8.7%
April 16 - April 30	0.0	4.9	72.6	9.8	3.0	2.4	4.9	2.4
May 1 - May 15	10.4	26.6	14.5	3.5	1.2	3.5	17.3	23.1
May 16 - May 31	1.1	2.3	19.4	7.4	6.9	9.1	20.6	33.1
2 month ave.	03.1%	9.1%	38.9%	6.2%	4.9%	5.3%	13.1%	19.3%

Table IV Seeing Record

	Stellar Image Size - % of night hours observed					
	0.5" - 0.9"	1.0 - 1.4"	1.5 - 1.9"	2.0 - 2.9"	3.0 - 3.9"	≥ 4.0"
ASM Record	0.0%	18.6%	34.2%	39.9%	6.0%	1.3%
DBT Record	2.1%	17.8%	24.2%	35.3%	13.9%	6.7%

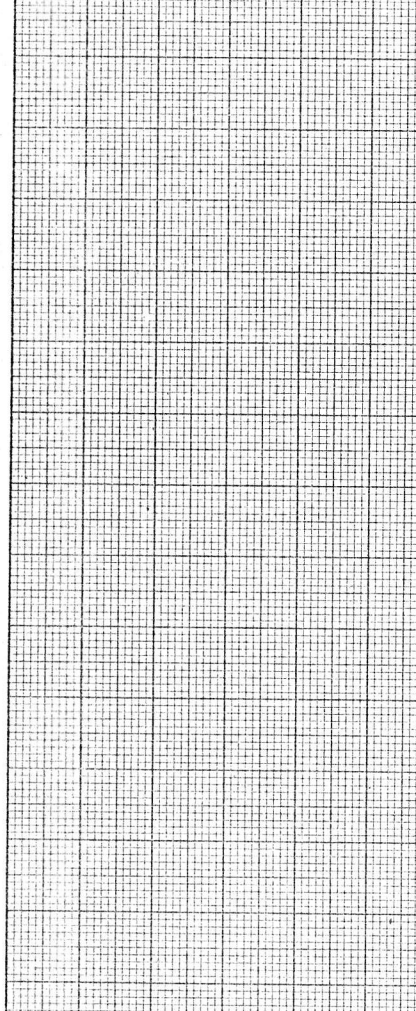
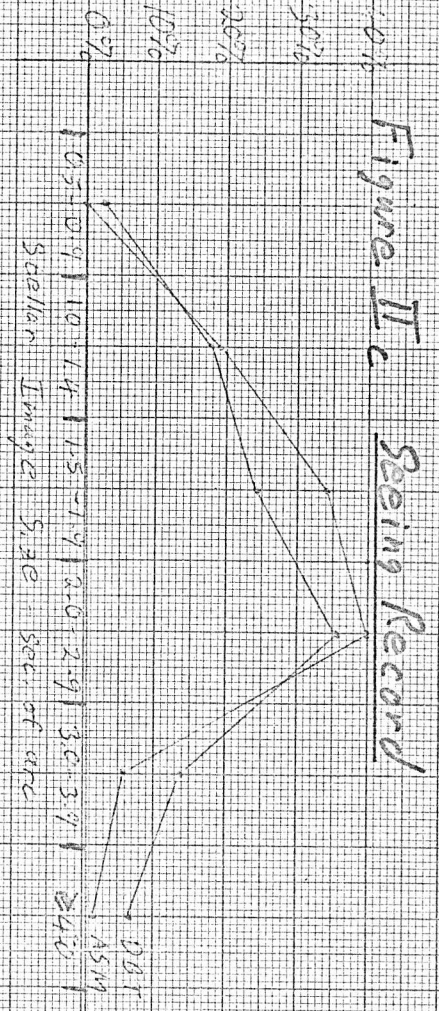
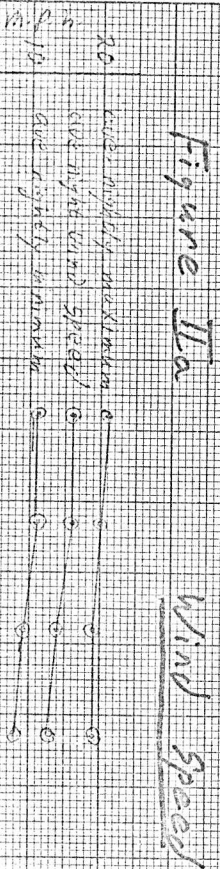


Figure 1a Temperature Record

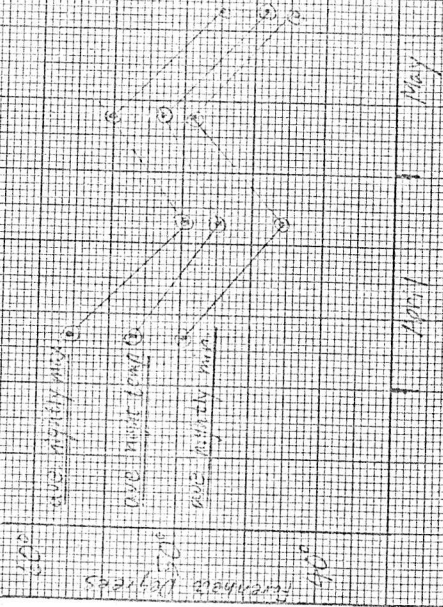


Figure 1b Cloudiness Record

