



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## 2019 Weather Record Overview: Townsville

	Temperature (°C)		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m <sup>2</sup> )				
	Ambient	Dew Point	9am	9pm					Horiz	19°N	UV-R Horiz		
	Max	Min	9am	9pm	9am	9pm							
January	31.5	24.1	21.3	21.6	69	71	468.0	228.0	280.0	243.1	631.1	636.8	34.97
Febuary	32.2	24.4	20.4	20.7	74	73	977.0	160.8	276.5	183.1	562.0	568.8	29.15
March	31.4	23.3	18.7	20.1	71	81	247.4	194.2	294.1	262.9	611.9	661.5	30.09
April	30.2	20.5	15.7	17.3	63	74	37.0	235.0	165.6	252.7	547.9	617.7	28.10
May	29.2	18.9	15.9	17.4	66	76	19.0	196.6	180.5	251.0	503.9	588.1	23.79
June	27.1	17.2	14.7	16.4	66	75	14.0	204.8	167.6	251.8	462.0	554.9	20.26
July	25.9	14.3	15.4	12.3	64	68	14.0	145.8	199.7	309.6	544.0	659.9	31.55
August	26.9	14.6	14.2	13.1	60	71	4.7	188.8	221.0	316.6	597.8	692.6	33.62
September	29.0	15.4	14.4	15.5	57	68	0.0	220.2	209.2	290.2	636.2	701.7	34.37
October	30.4	20.4	15.9	18.2	65	79	5.0	323.9	220.1	302.1	703.6	709.3	35.45
November	31.6	22.5	16.6	18.0	66	75	4.5	284.9	209.2	305.8	730.0	730.4	38.03
December	33.4	24.7	18.3	21.3	64	79	5.0	267.8	171.2	282.5	734.1	719.2	37.97
<b>Average</b>	<b>29.9</b>	<b>20.0</b>	<b>16.8</b>	<b>17.7</b>	<b>65.4</b>	<b>74.1</b>	<b>149.6</b>	<b>220.9</b>	<b>216.2</b>	<b>271.0</b>	<b>605.4</b>	<b>653.4</b>	<b>31.4</b>
<b>Total</b>							<b>1795.6</b>	<b>2650.7</b>	<b>2594.7</b>	<b>3251.4</b>	<b>7264.4</b>	<b>7841.0</b>	<b>377.35</b>

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.

**Total Langleys**      **173,765**    **187,556**  
**Average Langleys per month**    **15,630**



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## January 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	32.0	22.7	20	20	64	66	1.6	8.8	6.5	10.2	26.5	27.0	1.50	O/N Shwr, Fine
2	31.9	23.3	21	20	58	62	0.0	9.6	10.1	9.8	27.8	28.3	1.55	Fine
3	32.9	22.6	19	23	52	65	0.0	11.0	9.2	10.0	27.3	27.5	1.52	Fine
4	32.7	23.1	23	22	58	67	0.0	9.0	8.2	11.1	27.2	27.8	1.55	Fine
5	31.8	23.0	24	22	59	63	0.0	10.0	6.9	9.7	23.0	23.3	1.25	Fine, Lt Cloud
6	32.5	23.9	22	20	58	61	0.0	9.6	5.4	10.4	28.0	28.3	1.56	Fine
7	32.6	23.9	22	21	60	65	0.0	10.6	6.9	10.6	27.4	27.8	1.55	Fine
8	33.8	23.9	19	21	58	63	0.0	9.0	6.3	10.7	27.7	26.9	1.48	Fine
9	38.3	24.9	19	20	53	58	0.0	8.8	8.2	9.3	24.4	25.0	1.35	Fine
10	29.5	24.6	24	23	94	90	12.8	10.4	13.6	3.6	6.9	7.2	0.40	Cloud, Rain
11	31.4	25.4	22	22	72	88	4.4	2.4	9.5	9.3	24.2	24.5	1.35	Fine
12	31.2	24.3	22	21	65	72	0.4	8.4	3.2	10.2	25.1	24.3	1.34	Fine
13	32.4	22.3	21	21	58	66	0.0	9.2	8.6	9.9	24.0	23.3	1.28	Fine
14	32.8	25.1	21	22	58	63	0.0	8.0	3.5	10.5	26.2	25.4	1.40	Fine
15	31.6	25.3	19	21	62	65	0.0	9.4	6.6	9.0	21.0	21.2	1.12	Fine
16	32.2	21.7	20	21	61	70	1.2	7.4	3.8	11.1	28.1	28.5	1.55	Fine
17	31.4	24.5	19	21	57	63	0.0	10.0	5.6	10.8	28.0	28.7	1.58	Fine
18	31.4	24.9	22	21	71	65	0.0	9.8	11.3	7.6	19.5	18.9	1.04	Fine
19	32.3	25.9	21	22	63	74	0.8	8.2	8.6	9.8	26.4	26.9	1.45	Fine
20	32.4	22.9	20	21	67	65	0.0	10.0	6.8	8.7	23.6	24.0	1.33	Fine
21	32.5	23.3	20	22	59	68	0.0	10.0	7.7	9.4	24.5	24.9	1.38	Fine
22	32.5	23.8	19	20	63	64	0.8	10.8	3.0	9.7	26.4	26.9	1.49	Fine
23	32.0	25.5	21	22	66	68	0.0	10.4	5.8	8.4	17.5	18.1	1.02	Fine
24	32.8	25.4	18	21	66	64	0.0	8.0	7.4	9.2	24.6	25.2	1.35	Fine
25	31.0	25.6	20	21	69	67	5.5	4.4	6.1	6.8	15.5	15.6	0.83	Fine, Rain
26	31.4	25.7	21	21	75	68	1.5	3.2	7.1	4.1	9.1	9.5	0.49	Fine, Rain
27	27.6	23.3	24	25	95	89	33.2	0.6	14.1	1.5	5.5	5.7	0.35	Overcast, Rain
28	26.7	24.0	24	23	95	89	52.4	1.0	16.5	1.2	3.9	4.1	0.23	Overcast, Rain
29	27.7	23.9	25	24	97	96	85.2	0.0	17.3	0.5	3.3	3.2	0.18	Overcast, Rain
30	27.1	24.1	24	23	95	94	110.8	0.0	22.5	0.0	4.9	5.1	0.30	Overcast, Rain
31	26.9	24.6	24	23	98	95	157.4	0.0	23.7	0.0	3.4	3.6	0.21	Overcast, Rain

	Temperature C°				Humidity		Rain	Evap.	Radiation				
	Max	Min	Dew	Point	am	pm	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R
Avg.	31.5	24.1	21.3	21.6	69	71		7.4	9.0	7.8	20.4	20.5	1.13
Total							468.0	228.0	280.0	243.1	631.1	636.8	34.97

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

**15,096 15,232 Total Langleys**  
**629 635 Avg. Langleys**

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## February 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )		UV-R	Remarks
	Ambient						mm	mm	Time	Shine	Horiz	19°N	Horiz	
	Max	Min	9am	9pm	9am	9pm			Hours	Hours				
1	26.5	24.4	25	23	93	95	216.5	0.0	20.5	0.0	4.7	4.9	0.22	Overcast, Rain
2	25.3	24.6	24	24	98	98	121.5	0.2	17.8	0.5	5.7	5.9	0.28	Overcast, Rain
3	27.4	22.5	23	23	99	87	153.0	0.2	19.2	1.2	6.9	7.1	0.37	Overcast, Rain
4	26.9	22.8	23	23	92	98	173.0	0.0	22.4	0.0	5.5	5.8	0.29	Overcast, Rain
5	29.2	24.2	24	22	94	84	47.0	1.0	16.7	3.5	15.7	15.8	0.83	Overcast, Rain
6	29.0	24.8	25	24	96	80	108.5	0.2	15.0	2.8	15.8	16.0	0.83	Overcast, Rain
7	27.7	24.0	22	21	88	94	17.5	0.6	13.6	1.3	4.8	5.0	0.26	Overcast, Rain
8	29.0	23.0	23	23	86	90	129.0	0.2	19.3	1.7	8.4	8.5	0.41	Overcast, Rain
9	31.9	24.5	19	20	69	66	1.0	8.2	8.2	9.3	24.3	24.6	1.25	Fine
10	34.1	24.7	21	19	80	75	0.0	6.6	7.9	8.5	27.4	27.4	1.41	Fine
11	36.4	25.4	20	21	67	69	0.0	9.0	8.5	9.0	27.5	27.7	1.43	Fine
12	37.6	25.2	19	20	57	62	0.0	8.4	3.2	9.8	27.5	27.7	1.45	Fine
13	36.1	22.9	18	20	53	66	0.0	6.8	8.6	9.9	27.4	27.5	1.42	Fine
14	39.3	24.3	19	22	63	72	0.0	5.4	4.5	9.6	26.8	27.3	1.39	Fine
15	31.9	27.0	19	21	65	65	0.0	9.4	0.6	8.9	26.8	27.1	1.41	Fine
16	32.4	24.9	20	20	62	59	0.0	8.0	3.8	9.1	26.8	27.0	1.38	Fine
17	31.3	25.5	19	20	70	59	0.0	8.8	5.6	7.4	23.8	24.1	1.28	Fine
18	31.6	25.3	19	21	62	67	0.0	7.0	8.4	8.7	26.0	26.4	1.35	Fine
19	34.4	27.1	20	19	73	60	0.0	6.6	7.5	9.8	27.0	27.4	1.42	Fine
20	40.3	26.3	17	19	51	58	0.0	7.6	6.8	8.5	26.9	27.1	1.39	Fine
21	40.7	23.1	16	18	53	61	0.0	9.6	7.7	9.4	26.8	27.1	1.43	Fine
22	33.6	24.2	19	19	74	63	0.0	10.6	4.3	9.7	26.0	26.1	1.34	Fine
23	31.4	27.0	21	22	70	75	0.0	9.4	5.9	6.6	17.4	17.7	0.89	Fine, Cloud
24	30.7	23.0	22	18	89	60	7.0	5.6	11.4	5.2	14.6	15.0	0.75	Fine, Rain
25	31.6	23.8	20	21	75	63	3.0	5.0	6.1	7.9	21.5	21.7	1.13	Fine, Rain
26	33.1	22.4	18	19	64	65	0.0	9.0	7.1	8.6	24.2	24.4	1.25	Fine
27	31.5	22.2	18	18	63	68	0.0	8.4	8.2	7.1	20.5	20.6	1.03	Fine, Lt Cloud
28	31.6	23.2	18	19	60	71	0.0	9.0	7.7	9.1	25.6	25.9	1.28	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation						
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R		
Avg.	32.2	24.4	20.4	20.7	74	73	5.7	9.9	6.5	20.1	20.3	1.04	
Total							977.0	160.8	276.5	183.1	562.0	568.8	29.15

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langley's divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet. Condensation is primary source of moisture.

**13,444 13,607 Total Langley's**  
**560 567 Avg. Langley's**



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## March 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	32.8	24.0	22	19	91	78	1.0	6.2	8.6	7.2	13.6	14.3	0.74	Fine, Cloud
2	32.5	23.6	18	19	61	73	9.5	6.8	11.8	11.4	24.4	25.9	1.17	Fine
3	31.1	23.8	19	21	67	77	0.0	7.4	12.0	11.4	27.6	29.4	1.30	Fine
4	31.2	21.5	18	20	63	84	0.0	7.4	13.1	11.4	20.2	21.5	1.04	Fine, O/N Rain
5	30.6	22.8	19	20	72	83	5.0	6.6	11.0	10.5	21.0	22.3	1.10	Fine
6	30.5	22.9	18	21	68	85	0.0	7.2	12.6	11.2	22.7	24.3	1.17	Fine, O/N Rain
7	30.6	23.2	19	19	74	79	7.0	6.2	9.2	11.3	23.5	25.1	1.16	Fine
8	31.0	23.9	18	20	69	81	0.0	7.4	9.8	10.4	21.8	23.3	1.08	Fine
9	31.4	25.4	18	22	73	94	2.5	7.6	7.7	6.7	18.6	19.9	0.91	Fine, O/N Rain
10	31.2	24.1	21	22	79	82	13.0	6.8	6.5	7.9	18.2	19.5	0.85	Fine, O/N Rain
11	31.6	24.5	19	22	76	84	2.0	6.0	6.0	8.3	21.8	23.3	1.03	Showers, Fine
12	30.1	24.4	21	20	85	77	0.0	7.0	5.2	3.8	14.1	14.9	0.71	Fine, Cloud
13	31.4	23.5	18	19	64	78	0.4	5.4	8.9	6.2	13.1	14.0	0.66	Fine, Cloud
14	31.8	23.4	18	19	65	74	0.0	6.8	3.6	3.0	16.5	17.5	0.79	Fine, Cloud
15	34.3	22.2	19	20	73	86	0.0	5.0	11.6	5.3	14.9	15.9	0.78	Fine, Cloud
16	32.7	24.0	20	23	75	94	7.5	6.2	5.9	0.3	12.1	12.7	0.59	Overcast, Rain
17	32.0	23.7	22	22	96	86	171.0	0.0	24.0	0.0	3.8	4.0	0.21	Overcast, Rain
18	32.6	23.3	17	18	68	79	23.5	1.4	17.3	9.2	21.2	22.9	1.03	Rain, Fine
19	30.9	22.3	17	18	63	79	4.5	7.6	11.1	6.7	20.9	22.5	1.01	Fine
20	31.3	24.2	16	19	59	80	0.5	7.8	7.8	7.4	15.1	16.4	0.80	Fine
21	30.7	23.6	18	19	64	79	0.0	5.4	8.6	9.2	23.5	25.5	1.08	Fine
22	30.4	23.8	19	21	75	86	0.0	6.0	6.6	9.9	21.5	23.5	0.98	Fine
23	30.7	22.5	18	21	70	85	0.0	5.8	8.2	11.0	21.2	23.3	1.04	Fine
24	31.5	23.1	19	20	69	81	0.0	6.0	4.3	10.5	24.4	26.8	1.19	Fine
25	30.2	22.8	19	20	73	81	0.0	6.6	11.7	9.7	20.5	22.5	0.98	Fine
26	30.0	22.5	18	21	69	85	0.0	6.4	11.4	9.0	19.1	20.9	0.96	Fine
27	30.1	22.9	19	20	70	88	0.0	6.6	10.6	11.1	22.3	24.7	1.11	Fine
28	31.9	22.6	20	20	76	78	0.0	5.0	10.8	10.4	24.0	26.6	1.16	Fine
29	31.8	22.9	19	20	67	79	0.0	7.4	11.9	11.0	21.8	24.1	1.08	Fine
30	31.7	23.3	18	19	62	76	0.0	7.8	4.2	10.6	23.8	26.5	1.17	Fine
31	32.2	22.6	17	18	55	71	0.0	8.4	2.1	10.9	24.7	27.5	1.22	Fine

Avg.	Temperature C°				Humidity		Rain	Evap.	Radiation				
	Max	Min	Dew	Point	am	pm	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R
	31.4	23.3	18.7	20.1	71	81		6.3	9.5	8.5	19.7	21.3	0.97
<b>Total</b>							<b>247.4</b>	<b>194.2</b>	<b>294.1</b>	<b>262.9</b>	<b>611.9</b>	<b>661.5</b>	<b>30.09</b>

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.

**14,637 15,823 Total Langleys**  
**610 659 Avg. Langleys**



# Allunga Exposure Laborato

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## April 2019 Daily Weather Record

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	Horiz	
1	31.5	23.1	17	19	60	79	5.5	8.0	8.5	11.1	23.0	25.0	1.19	Fine, O/N Shower
2	30.2	22.2	18	19	69	75	2.5	8.2	7.2	9.2	16.2	17.5	1.05	Rain, Fine
3	30.8	20.6	16	17	68	71	0.5	8.0	10.4	10.3	21.2	23.5	1.07	Fine
4	31.3	21.9	15	16	62	63	0.0	9.6	4.6	5.8	14.6	16.0	0.76	Fine, Lt Cloud
5	30.7	23.8	16	18	61	75	0.0	8.4	5.3	5.4	15.4	16.7	0.88	Fine, Lt Cloud
6	31.1	23.0	17	18	68	76	0.0	8.0	4.2	4.2	9.8	10.4	0.52	Fine, Lt Cloud
7	30.4	22.2	17	18	65	78	6.0	5.2	5.8	10.8	22.1	25.0	1.12	Fine
8	30.9	20.3	18	17	70	73	0.0	7.0	9.2	10.5	21.4	24.1	1.07	Fine
9	31.7	22.1	15	17	62	72	0.0	7.2	6.1	9.5	19.3	21.8	1.02	Fine
10	30.3	21.7	15	17	63	71	0.0	11.8	0.0	9.4	19.6	22.2	0.98	Fine
11	29.6	21.4	17	18	70	77	0.0	8.8	4.0	8.9	18.9	21.3	1.03	Fine
12	32.0	20.5	13	16	52	62	0.0	8.0	3.5	10.6	23.2	26.5	1.19	Fine
13	27.8	18.3	13	17	55	66	0.0	9.6	0.0	10.9	24.1	27.6	1.22	Fine, O/N Shower
14	28.2	14.5	13	17	58	70	4.5	7.2	7.7	10.7	23.6	27.1	1.21	Fine
15	29.1	15.0	12	16	53	68	0.0	6.6	0.0	10.7	23.0	26.4	1.18	Fine
16	29.8	17.6	16	17	64	74	0.0	8.0	5.4	8.8	18.1	20.3	0.85	Fine
17	29.4	19.2	17	17	67	74	0.0	8.2	6.3	8.9	17.3	19.6	0.74	Fine, Lt Cloud
18	31.1	18.9	16	17	65	78	0.0	5.8	5.0	10.2	21.9	25.3	1.14	Fine
19	30.5	19.2	16	18	66	83	3.0	7.8	9.1	9.2	16.6	19.0	0.82	Rain, Fine
20	30.3	21.9	15	16	58	69	0.0	7.2	4.6	5.1	14.7	16.2	0.66	Fine, Cloud
21	29.8	21.7	15	16	61	72	0.0	8.0	5.3	9.7	20.0	23.2	1.02	Fine
22	28.7	19.4	16	17	65	77	0.0	8.0	6.0	9.8	19.8	22.7	0.98	Fine
23	30.2	21.3	15	17	63	79	0.0	9.8	4.7	5.9	15.2	16.9	0.79	Fine, Lt Cloud
24	29.4	19.6	16	18	67	80	0.5	6.8	5.4	6.0	16.4	18.3	0.82	Fine, Lt Cloud
25	29.9	20.6	16	19	65	86	7.0	7.2	9.4	5.9	14.2	15.7	0.67	Fine, Shower
26	31.1	20.5	13	15	55	67	0.0	7.8	5.1	10.5	18.4	21.5	1.01	Fine
27	28.6	20.7	16	17	66	78	0.0	7.6	3.6	0.6	8.5	9.0	0.47	Cloud, O/N Shower
28	30.4	23.0	17	19	68	84	7.5	6.6	8.9	5.0	15.0	16.6	0.75	Rain, Fine
29	29.8	21.3	17	18	64	71	0.0	7.2	4.6	9.8	16.8	19.6	0.86	Fine, Lt Cloud
30	30.2	19.8	17	18	59	82	0.0	7.4	5.7	9.3	19.7	22.7	1.03	Fine

	Temperature C°				Humidity		Rain	Evap.	Wet Hr	Sun Hr	Radiation		
	Max	Min	Dew	Point	am	pm	mm	mm			Horiz	19° N	UV-R
Avg.	30.2	20.5	15.7	17.3	63.0	74.3		7.8	5.5	8.4	18.3	20.6	0.9
Total							37.0	235.0	165.6	252.7	547.9	617.7	28.1

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langley's divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.

**13,105 14,775 Total Langley's**  
**477 Avg. Langley's**



# Allunga Exposure Laborato

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## May 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Ambient Max	Ambient Min	9am	9pm	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	Horiz	
1	32.5	22.2	18	19	71	76	2.5	7.2	8.8	9.5	20.0	23.8	0.94	Shower, Fine
2	31.9	21.4	17	18	65	83	0.0	7.6	0.0	11.3	20.2	24.0	0.97	Fine
3	31.3	18.1	13	17	56	77	0.0	8.8	0.0	11.2	20.1	24.0	0.97	Fine
4	30.0	19.2	18	19	72	80	0.0	7.0	5.8	8.8	17.9	20.7	0.83	Fine
5	28.2	24.4	19	21	69	94	0.0	6.4	0.6	0.5	5.7	6.1	0.27	Cloud, O/N Shower
6	28.8	21.7	18	20	71	85	4.0	1.0	8.4	9.6	19.1	22.4	0.96	Fine
7	30.4	20.6	19	18	73	73	0.0	5.8	8.3	7.6	16.6	19.0	0.79	Fine
8	29.9	23.5	18	20	67	80	0.0	3.8	1.8	0.5	9.1	9.7	0.55	Fine, Cloud
9	31.1	23.3	19	18	72	75	12.5	4.4	10.2	7.2	15.5	17.7	0.75	Rain, Fine
10	29.7	21.8	20	18	75	70	0.0	7.0	2.0	3.1	11.3	12.4	0.54	Fine, Lt Cloud
11	29.4	20.3	17	17	67	71	0.0	6.6	10.8	8.5	16.2	18.9	0.80	Fine, Lt Cloud
12	29.6	17.8	16	18	62	77	0.0	7.2	10.4	5.9	16.2	18.3	0.75	Fine, Lt Cloud
13	26.2	19.0	18	20	70	81	0.0	6.6	8.4	5.4	16.2	18.2	0.69	Fine, Lt Cloud
14	30.3	17.4	18	20	68	83	0.0	6.8	13.0	10.7	20.1	23.5	0.95	Fine
15	28.7	17.2	18	20	65	82	0.0	7.6	13.7	10.5	20.0	23.4	0.93	Fine
16	29.5	18.8	17	19	64	78	0.0	7.0	9.2	10.8	20.3	23.7	0.87	Fine
17	25.5	18.2	15	16	62	76	0.0	5.8	10.1	10.7	20.4	23.9	0.95	Fine
18	27.6	14.0	11	12	58	66	0.0	6.0	8.1	11.1	19.9	23.1	0.96	Fine
19	29.4	13.5	14	16	62	76	0.0	6.4	8.0	11.1	19.7	23.4	0.91	Fine
20	30.2	14.1	15	18	76	80	0.0	4.6	11.0	11.1	19.9	23.3	0.86	Fine
21	28.6	16.9	11	15	55	71	0.0	6.2	8.6	9.7	18.1	21.8	0.83	Fine
22	29.3	16.2	8	12	49	58	0.0	9.0	0.0	9.5	18.5	22.1	0.85	Fine
23	28.4	15.5	11	15	52	70	0.0	7.2	2.2	8.7	13.6	16.1	0.70	Fine, Lt Cloud
24	27.9	17.3	15	17	64	73	0.0	5.4	0.0	1.0	9.3	9.9	0.50	Mist, Cloud
25	30.1	21.9	17	16	75	71	0.0	5.2	0.0	6.0	13.5	15.4	0.66	Fine, Cloud
26	28.3	21.7	17	15	68	63	0.0	7.2	0.0	2.0	10.8	11.7	0.55	Fine, Cloud
27	29.6	18.8	15	17	58	72	0.0	7.2	0.0	8.8	14.5	17.3	0.59	Fine, Lt Cloud
28	28.3	19.1	17	19	68	85	0.0	6.8	7.2	10.7	15.6	19.1	0.80	Fine, Lt Cloud
29	27.4	15.5	13	16	72	80	0.0	4.0	10.5	9.8	15.4	18.6	0.69	Fine, Lt Cloud
30	28.5	20.7	16	17	65	76	0.0	5.6	3.4	10.6	16.8	20.7	0.74	Fine, Lt Cloud
31	29.0	17.3	15	16	65	72	0.0	9.2	0.0	9.1	13.3	15.9	0.64	Fog, Fine

	Temperature C°				Humidity		Rain		Wet Hr	Sun Hr	Horiz	19° N	UV-R
	Max	Min	Dew Point	am	pm	mm	mm						
Avg.	29.2	18.9	15.9	17.4	65.7	75.9		6.3	5.8	8.1	16.3	19.0	0.8
Total							19.0	196.6	180.5	251.0	503.9	588.1	23.8

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

**12,053 14,067 Total Langleys**  
**389 454 Avg. Langleys**

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## June 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m <sup>2</sup> )		UV-R	Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	
1	27.1	17.5	15	16	66	77	0.0	4.4	7.1	5.1	9.3	10.7	0.47	Lt Cloud, O/N Rain
2	29.0	18.2	15	17	68	75	1.5	4.6	8.6	9.4	14.8	17.9	0.63	Fine, Lt Cloud
3	28.5	18.8	15	16	63	67	0.5	8.0	6.5	6.0	11.4	13.1	0.66	Fine, Lt Cloud
4	28.3	19.8	15	16	58	68	0.0	7.8	0.0	6.7	14.4	16.7	0.68	Fine, Lt Cloud
5	27.9	18.5	15	18	64	80	0.0	6.4	5.1	4.9	13.6	15.7	0.65	Fine, Lt Cloud
6	26.4	17.9	17	18	72	81	0.0	7.2	6.2	10.3	17.0	20.5	0.75	Fine
7	27.7	17.6	17	18	70	84	1.0	7.0	6.9	7.0	15.6	18.4	0.57	Fine, Lt Cloud
8	28.2	18.9	15	17	61	79	4.5	7.0	10.6	2.8	10.0	10.9	0.39	Rain, Cloud
9	28.1	19.2	17	19	75	86	0.0	8.4	7.5	9.3	17.3	20.9	0.76	Fine, Lt Cloud
10	28.5	17.4	15	17	69	77	0.0	6.4	5.8	5.8	9.7	11.1	0.51	Fine, Lt Cloud
11	26.9	17.8	16	17	71	78	0.0	5.8	6.1	10.6	15.6	19.3	0.72	Fine
12	28.6	16.5	16	17	77	82	0.0	6.4	7.4	10.5	17.8	22.0	0.76	Fine
13	27.5	16.1	16	18	78	83	0.0	5.2	9.0	9.7	15.8	19.3	0.75	Fine, Lt Cloud
14	27.0	18.9	17	17	81	77	0.0	5.0	5.3	9.6	13.5	16.5	0.67	Fine, Lt Cloud
15	28.9	19.7	17	18	73	84	0.0	4.8	6.2	7.6	15.6	18.4	0.61	Fine, Lt Cloud
16	27.4	18.9	15	14	62	57	0.0	4.8	0.0	7.3	13.7	16.1	0.66	Fine, Lt Cloud
17	25.7	16.4	14	15	65	69	0.0	8.6	3.9	8.5	15.6	18.7	0.69	Fine, Lt Cloud
18	25.2	15.0	14	15	63	71	0.0	8.4	5.7	8.6	17.4	20.9	0.72	Fine
19	27.1	17.6	10	15	53	63	0.0	4.2	2.2	9.3	17.8	21.3	0.69	Fine
20	25.6	16.7	11	15	52	67	0.0	8.6	3.5	9.1	18.7	22.6	0.73	Fine
21	26.5	15.4	12	16	57	75	0.0	8.0	4.4	10.8	17.6	22.0	0.81	Fine
22	26.9	15.0	14	17	60	78	0.0	8.8	6.8	11.0	18.6	23.3	0.84	Fine
23	27.2	16.5	11	15	55	70	0.0	7.4	0.0	10.5	17.4	21.5	0.71	Fine
24	25.0	14.9	12	14	56	64	1.5	9.2	6.7	9.8	17.8	21.8	0.76	Fine, Shower
25	26.8	15.6	13	15	56	70	0.0	6.8	3.0	9.3	15.5	18.0	0.65	Fine
26	26.3	16.1	15	16	65	73	1.5	6.6	5.3	3.3	13.0	14.1	0.52	Lt Cloud, O/N Rain
27	25.5	15.8	14	17	72	89	0.0	6.0	7.8	9.4	16.4	19.6	0.7	Fine
28	26.2	17.2	18	16	87	78	3.5	7.0	9.4	7.9	15.6	19.1	0.73	Rain, Fine
29	27.7	17.5	15	16	66	72	0.0	8.2	4.1	10.9	17.9	22.3	0.74	Fine
30	25.4	15.7	15	16	64	73	0.0	7.8	6.5	10.8	17.9	22.2	0.73	Fine

	Temperature C°		Dew Point		Humidity		Rain		Wet Hr	Sun Hr	Horiz	19° N	UV-R
	Max	Min	9am	9pm	am	pm	mm	mm					
Avg.	27.1	17.2	14.7	16.4	66.0	74.9		6.8	5.6	8.4	15.4	18.5	0.7
Total							14.0	204.8	167.6	251.8	462.0	554.9	20.3

**11,051 13,273 Total Langleys**  
**356 428 Avg. Langleys**

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## July 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	Horiz	
1	26.5	13.2	13	17	53	65	0.0	4.0	8.7	10.6	17.8	22.0	0.97	Fine
2	26.3	17.4	15	17	54	60	0.0	4.6	7.5	10.8	17.2	20.6	0.88	Fine
3	26.7	11.8	13	15	59	70	0.0	5.0	6.7	10.3	17.0	21.0	1.04	Fine
4	24.9	16.3	16	14	55	85	0.0	4.8	8.4	9.3	15.3	18.6	0.87	Fine, Lt Cloud
5	23.5	18.1	16	16	80	82	3.5	2.0	7.2	10.0	15.5	19.0	0.97	Fine, O/N Shower
6	25.8	18.9	15	17	74	72	0.5	2.0	6.3	10.4	18.9	23.2	1.01	Fine, O/N Shower
7	26.3	19.6	17	18	79	90	0.0	3.2	4.2	10.8	18.9	23.0	0.94	Fine
8	25.1	20.1	17	18	87	77	1.5	1.6	8.6	10.9	18.4	22.9	0.90	Fine
9	26.4	17.3	15	16	66	66	1.0	2.8	7.4	10.8	18.5	22.9	0.90	Fine
10	26.4	19.8	16	18	73	84	0.0	4.6	6.5	10.8	18.8	23.3	0.98	Fine
11	26.4	19.5	19	18	80	88	3.5	3.4	7.8	9.3	19.1	23.1	1.02	Fine, O/N Shower
12	26.1	15.0	14	13	88	64	4.0	3.0	5.2	10.3	17.0	20.8	1.00	Shower, Fine
13	27.9	13.0	17	14	59	61	0.0	4.8	6.9	10.5	18.0	22.1	1.03	Fine
14	25.8	12.5	16	10	53	64	0.0	6.4	10.3	9.8	17.9	21.6	1.04	Fine
15	23.4	11.8	16	8	58	55	0.0	8.0	4.5	10.5	18.0	22.0	1.02	Fine
16	23.3	9.5	14	6	47	58	0.0	4.4	0.0	10.4	18.5	22.6	1.02	Fine
17	23.4	10.0	15	7	56	59	0.0	4.4	5.2	10.3	17.5	21.3	1.00	Fine
18	25.2	10.6	16	8	62	57	0.0	5.0	6.1	10.2	17.4	21.1	1.00	Fine
19	24.2	9.9	14	7	67	49	0.0	5.4	8.0	10.8	18.7	22.9	1.04	Fine
20	24.7	11.6	14	8	60	55	0.0	6.6	6.8	8.9	19.0	22.6	1.00	Fine, Lt Cloud
21	26.4	11.9	15	9	63	68	0.0	4.0	8.4	10.9	17.4	21.3	1.06	Fine
22	27.3	12.7	16	11	74	76	0.0	4.0	10.1	9.1	12.9	15.4	0.91	Fine, Lt Cloud
23	27.5	19.5	16	15	66	73	0.0	5.6	8.8	7.8	16.3	19.1	0.89	Fine, Cloud
24	27.2	13.0	15	10	52	59	0.0	5.6	7.3	10.0	13.0	15.7	0.88	Fine
25	26.5	11.9	14	9	49	62	0.0	7.4	8.6	7.2	10.7	12.4	0.86	Fine
26	26.3	11.6	13	10	59	68	0.0	7.2	7.2	5.5	12.2	13.8	0.90	Fine
27	26.5	13.2	16	11	60	72	0.0	5.0	4.3	10.4	20.4	24.6	1.15	Fine
28	27.4	14.2	16	11	64	60	0.0	4.0	0.0	11.0	20.8	25.3	1.16	Fine
29	26.3	13.1	15	10	59	65	0.0	7.2	0.0	11.0	20.9	25.3	1.14	Fine
30	26.5	12.7	17	11	65	70	0.0	5.6	5.3	10.7	21.1	25.4	0.83	Fine
31	26.8	13.4	17	10	70	64	0.0	4.2	7.4	10.3	20.9	25.0	1.15	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	25.9	14.3	15.4	12.3	64	68	4.7	6.4	10.0	17.5	21.29	0.99
Total					14.0	145.8	199.7	309.6	544.0	659.9	31.55	

**13,012 15,785 Total Langleys**  
**542 658 Avg. Langleys**

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.





# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## August 2019 Daily Weather Record

Date	Temperature (°C)		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks		
	Ambient		Dew Point		mm	mm	Time	Shine	UV-R					
	Max	Min	9am	9pm	9am	9pm	Hours	Hours	Horiz	19°N	Horiz			
1	26.6	14.2	15	15	59	74	0.0	4.8	7.1	10.5	16.7	20.1	0.99	Fine
2	26.5	15.4	15	13	56	68	0.0	4.0	6.4	10.8	17.2	20.6	0.82	Fine
3	25.3	17.9	15	15	67	67	0.0	5.4	6.6	8.9	20.0	23.3	1.05	Fine
4	26.5	19.4	13	16	52	71	0.0	5.4	7.4	10.4	15.0	17.9	0.80	Fine, Lt Cloud
5	26.7	15.9	14	15	55	72	0.0	6.6	7.0	7.9	14.9	17.6	0.75	Fine, Lt Cloud
6	26.0	13.5	16	14	77	77	0.0	5.2	8.8	7.5	15.6	17.7	0.78	Fine, Lt Cloud
7	25.8	17.2	17	17	80	89	0.0	2.6	10.7	10.8	20.5	24.4	1.11	Fine
8	28.4	16.4	15	17	63	92	2.5	2.2	13.5	6.5	10.2	11.4	0.48	Rain, Fine
9	32.1	16.8	16	15	51	72	0.0	4.4	9.8	10.7	20.6	23.4	1.01	Fine
10	28.8	15.4	12	11	42	53	0.2	6.2	5.2	10.5	21.1	24.0	1.15	Fine
11	26.3	16.2	11	13	41	56	0.0	7.2	4.9	10.2	19.2	22.6	1.11	Fine
12	24.8	10.2	12	7	45	55	0.0	6.0	3.8	10.5	19.1	22.5	1.19	Fine
13	24.5	9.9	12	9	56	58	0.0	8.0	5.4	11.0	18.7	22.2	1.18	Fine
14	25.7	10.7	13	9	64	64	0.0	6.2	6.7	10.7	19.4	22.8	1.05	Fine
15	27.9	13.4	12	10	61	77	0.0	8.0	6.3	10.7	20.0	23.4	1.09	Fine
16	26.7	19.5	15	14	78	71	0.0	7.6	10.1	10.1	20.9	24.3	1.14	Fine
17	26.3	13.3	13	12	48	79	0.0	6.4	8.6	10.7	22.1	25.2	1.19	Fine
18	27.7	14.0	12	14	45	86	0.0	5.4	5.3	11.0	21.4	24.7	1.14	Fine
19	27.2	12.7	14	13	55	76	0.0	7.0	5.6	11.3	23.6	26.7	1.25	Fine
20	27.5	12.9	12	7	55	47	0.0	7.4	6.8	11.1	19.5	22.7	1.14	Fine
5.3	26.3	12.0	12	7	59	42	0.0	5.0	5.3	10.8	21.9	25.4	1.17	Fine
22	27.7	10.7	12	12	43	80	0.0	6.0	2.7	11.0	22.3	25.7	1.19	Fine
23	26.8	12.8	13	9	47	61	0.0	7.4	1.5	11.2	21.0	24.4	1.19	Fine
24	27.2	11.5	15	10	73	70	0.0	5.0	10.4	10.7	17.0	19.6	0.92	Fine, Lt Cloud
25	26.5	17.1	16	16	76	88	0.5	7.0	9.7	9.1	17.9	20.3	1.07	Fine, Lt Cloud
26	27.8	14.3	15	15	62	80	1.5	7.8	5.9	9.2	13.8	15.7	0.79	Shower, Cloud, Fine
27	26.2	14.3	16	15	68	80	0.0	6.6	4.8	9.1	20.8	23.5	1.13	Fine
28	26.5	14.1	16	15	70	78	0.0	10.0	8.4	10.6	23.2	26.6	1.25	Fine
29	28.4	17.5	18	18	80	82	0.0	6.0	10.1	11.2	22.9	26.3	1.24	Fine
30	26.8	17.5	16	17	70	74	0.0	6.2	8.7	11.0	22.2	25.4	1.11	Fine
31	27.1	15.6	16	17	73	77	0.0	5.8	7.5	10.9	19.4	22.2	1.10	Fine

	Temperature C°				Humidity		Rain	Evap.	Radiation				
	Max	Min	Dew	Point	am	pm	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R
Avg.	26.9	14.6	14.2	13.1	60	71		6.1	7.1	10.2	19.3	22.34	1.05
Total							4.7	188.8	221.0	316.6	597.8	692.6	33.62

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langley's divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.

**14,300 16,567 Total Langley's**  
**596 690 Avg. Langley's**



# Allunga Exposure Laborato

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## September 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	27.3	15.7	15	15	59	72	0.0	4.0	7.3	8.6	16.4	18.5	0.84	Fine, Lt Cloud
2	27.3	14.2	14	12	60	52	0.0	5.8	6.5	10.2	19.5	22.1	0.99	Fine
3	29.1	12.3	16	12	61	54	0.0	8.0	5.1	9.5	21.0	23.6	1.04	Fine
4	30.0	13.1	14	15	53	66	0.0	6.8	7.4	9.5	16.9	19.0	0.87	Fine, Lt Cloud
5	30.4	12.6	13	14	44	57	0.0	4.0	6.0	10.5	22.2	25.1	1.18	Fine
6	29.8	12.0	14	16	58	70	0.0	9.2	7.2	11.0	23.0	26.0	1.23	Fine
7	30.5	12.3	13	16	51	65	0.0	4.8	6.8	10.5	22.1	24.9	1.21	Fine
8	30.6	14.2	13	14	46	59	0.0	7.2	6.9	6.8	16.0	17.5	0.77	Fine, Lt Cloud
9	30.8	13.1	14	15	48	54	0.0	6.2	4.4	8.5	20.6	22.7	1.05	Fine, Lt Cloud
10	28.3	12.5	14	13	52	63	0.0	5.4	7.5	5.3	13.7	15.3	0.69	Fine, Cloud
11	27.7	12.7	13	14	55	69	0.0	8.0	6.3	5.7	13.3	14.3	0.63	Fine, Cloud
12	27.5	13.2	13	14	53	64	0.0	6.2	5.3	10.3	20.0	22.3	1.07	Fine
13	28.2	14.8	14	15	56	68	0.0	5.8	9.3	10.6	22.3	24.8	1.20	Fine
14	27.8	13.1	13	14	51	62	0.0	5.6	9.2	10.3	22.5	25.0	1.22	Fine
15	28.3	13.7	12	15	56	69	0.0	7.4	7.0	11.3	24.9	27.7	1.36	Fine
16	27.6	15.5	13	14	57	64	0.0	8.0	8.2	11.1	23.6	26.1	1.26	Fine
17	27.8	13.3	13	14	48	60	0.0	8.0	5.3	11.1	23.2	25.7	1.24	Fine
18	29.9	12.6	15	17	62	75	0.0	8.4	5.2	6.9	18.1	19.5	0.88	Fine, Lt Cloud
19	28.0	16.6	15	16	61	72	0.0	8.0	5.0	8.2	20.3	22.1	1.02	Fine
20	28.8	19.2	15	16	59	66	0.0	8.2	5.9	9.9	24.8	27.2	1.33	Fine
21	29.0	17.9	14	17	52	69	0.0	8.0	6.7	10.3	23.4	25.6	1.28	Fine
22	29.4	20.2	14	16	55	66	0.0	8.0	6.4	10.7	25.7	28.3	1.33	Fine
23	27.8	18.1	15	18	60	77	0.0	9.6	5.1	8.2	19.4	21.1	0.97	Fine, Lt Cloud
24	28.4	15.6	15	19	63	85	0.0	9.2	10.0	11.0	23.9	26.2	1.31	Fine
25	30.4	19.5	15	16	60	69	0.0	9.4	5.7	11.0	21.8	23.8	1.22	Fine
26	30.1	19.8	15	17	59	73	0.0	7.6	6.6	11.0	21.9	23.8	1.15	Fine
27	28.8	20.2	17	18	63	78	0.0	6.0	8.5	9.8	24.3	26.3	1.31	Fine
28	29.7	19.3	17	18	62	78	0.0	9.0	8.3	10.1	23.6	25.5	1.20	Fine
29	28.9	17.5	17	17	62	73	0.0	8.2	9.2	11.0	26.7	28.9	1.37	Fine
30	30.5	17.8	17	19	70	83	0.0	10.2	10.9	11.3	21.1	22.8	1.05	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	29.0	15.4	14.4	15.5	57	68	7.3	7.0	9.7	21.2	23.39	1.11
Total					0.0	220.2	209.2	290.2	636.2	701.7	34.37	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

**15,218 16,785 Total Langleys**  
**634 699 Avg. Langleys**

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## October 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	29.0	19.8	16	18	66	73	0.0	10.4	7.3	9.9	22.9	23.1	1.14	Fine, O/N Shower
2	30.0	22.1	16	16	62	69	1.5	10.6	6.5	9.9	22.1	22.2	1.11	Fine, Lt Cloud
3	29.7	20.9	17	16	68	73	0.0	10.4	5.1	9.4	21.1	22.4	1.15	Fine, Lt Cloud
4	29.1	19.1	18	17	64	79	0.0	11.0	7.4	10.4	23.1	23.4	1.17	Fine
5	28.2	16.6	17	18	70	84	0.0	10.6	6.0	9.8	23.5	24.4	1.26	Fine
6	27.9	14.7	16	17	65	78	0.0	11.2	7.2	10.4	23.6	23.7	1.18	Fine
7	29.0	16.5	16	17	69	77	0.0	10.8	6.8	10.0	23.7	24.4	1.20	Fine
8	32.9	15.4	15	18	62	80	0.0	10.8	6.9	9.6	23.8	23.8	1.19	Fine
9	31.0	16.5	15	17	64	73	0.0	9.4	4.4	10.3	23.8	23.4	1.15	Fine
10	30.2	18.6	15	18	57	79	0.0	7.2	7.5	9.2	22.7	22.6	1.13	Fine
11	30.1	22.4	16	17	60	71	0.0	9.4	6.3	9.3	20.8	20.7	1.07	Fine, Cloud
12	32.2	18.8	16	18	61	75	0.0	11.4	5.3	10.4	24.1	24.2	1.21	Fine
13	31.4	18.6	15	17	57	71	0.0	10.8	9.3	10.0	23.8	24.4	1.19	Fine
14	30.5	22.0	16	19	73	80	0.0	11.2	9.2	9.8	22.2	22.2	1.08	Fine
15	30.2	22.8	16	18	72	77	0.0	10.5	7.0	9.7	23.9	24.3	1.25	Fine
16	29.7	20.9	15	17	66	74	0.0	11.1	8.2	10.6	23.6	23.8	1.21	Fine
17	31.0	24.0	16	20	73	89	0.0	11.3	5.3	10.0	22.3	22.4	1.14	Fine
18	30.7	24.1	16	20	70	85	0.0	11.4	5.2	10.2	23.5	23.3	1.17	Fine
19	31.2	22.8	15	20	65	86	0.0	8.6	5.0	9.9	24.3	24.4	1.22	Fine
20	34.7	18.6	14	19	54	82	0.0	9.4	5.9	10.5	24.6	24.7	1.24	Fine
21	31.8	23.2	16	18	73	74	0.0	10.8	6.7	9.9	24.4	24.3	1.22	Fine
22	30.7	23.2	16	18	71	70	0.0	12.2	6.4	10.3	24.4	24.6	1.23	Fine
23	29.5	18.6	17	20	73	91	1.5	8.0	10.0	5.3	11.6	11.9	0.53	Cloud, Shower
24	30.2	18.3	16	17	69	73	0.0	9.6	5.1	9.5	21.3	21.4	1.07	Fine
25	30.5	22.7	16	18	64	81	0.0	10.6	5.7	10.1	23.7	23.9	1.19	Fine
26	30.4	22.3	16	21	62	94	0.5	11.2	6.6	10.2	25.0	25.0	1.28	Fine
27	30.6	20.7	17	19	67	84	1.0	11.6	8.5	10.6	24.4	24.4	1.21	Fine
28	29.6	20.6	16	17	63	77	0.0	10.8	8.3	10.2	23.4	23.6	1.17	Fine
29	30.9	22.8	15	18	57	79	0.0	11.2	9.2	10.0	22.3	22.2	1.13	Fine
30	31.0	21.9	16	20	64	85	0.0	10.6	10.9	8.4	21.1	21.1	1.03	Fine, Lt Cloud
31	29.7	22.7	17	21	68	91	0.5	9.8	10.9	8.4	18.7	19.0	0.93	Fine, Lt Cloud

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	30.4	20.4	15.9	18.2	65.5	79.2	10.4	7.1	9.7	22.7	22.9	1.1
Total					5.0	323.9	220.1	302.1	703.6	709.3	35.4	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

**16,830 16,967 Total Langleys**  
**701 707 Avg. Langleys**

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## November 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Ambient								Time	Shine	Horiz	19°N	Horiz	
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours			UV-R	
1	30.1	22.8	16	19	66	80	0.5	7.0	7.3	9.1	21.5	21.9	1.15	Fine, Cloud
2	30.1	22.9	17	18	66	79	0.5	7.6	6.5	9.9	23.5	23.4	1.20	Fine
3	30.2	22.7	17	17	72	72	0.5	9.5	5.1	10.6	25.1	25.0	1.31	Fine
4	31.2	23.7	17	21	71	91	0.0	9.0	7.4	9.3	22.2	22.4	1.19	Fine, Lt Cloud
5	30.9	20.9	17	17	72	75	0.5	9.2	6.0	10.0	23.7	23.8	1.24	Fine, Lt Cloud
6	32.6	18.7	16	18	66	73	0.0	9.9	7.2	10.7	25.4	25.2	1.30	Fine
7	30.6	22.7	16	17	64	69	0.0	10.3	6.8	10.6	25.2	25.3	1.32	Fine
8	31.8	18.4	15	17	63	77	0.0	10.8	6.9	10.7	25.4	25.2	1.29	Fine
9	36.4	18.3	15	16	54	72	0.0	9.7	4.4	10.7	25.5	25.4	1.30	Fine
10	32.6	18.1	17	17	59	81	0.0	10.4	7.5	10.4	24.8	25.1	1.29	Fine
11	31.3	21.5	17	19	64	76	0.0	10.6	6.3	10.6	25.1	25.0	1.32	Fine
12	30.2	22.6	18	17	64	65	0.0	9.7	5.3	10.6	25.3	25.4	1.35	Fine
13	31.5	22.1	16	19	57	71	0.0	8.5	9.3	10.7	25.4	25.3	1.33	Fine
14	31.6	23.5	18	19	69	75	0.0	10.6	9.2	10.2	24.2	24.4	1.25	Fine
15	31.0	23.7	17	19	70	77	0.0	9.5	7.0	9.8	23.2	23.1	1.20	Fine
16	31.2	22.4	16	17	66	74	0.0	7.6	8.2	9.9	23.6	23.7	1.24	Fine
17	32.1	23.5	17	18	64	74	0.0	8.6	5.3	10.4	24.8	24.6	1.26	Fine
18	32.7	23.9	17	20	74	83	0.0	9.0	5.2	10.6	25.2	25.3	1.31	Fine
19	31.7	24.0	18	20	71	79	0.0	10.3	5.0	10.7	25.4	25.1	1.33	Fine
20	31.5	24.3	16	20	67	72	0.0	10.5	5.9	10.7	25.3	25.4	1.29	Fine
21	31.4	25.3	17	20	69	71	0.0	10.8	6.7	10.4	24.7	24.8	1.26	Fine
22	31.1	22.1	18	17	74	67	0.0	8.8	6.4	10.7	25.5	25.3	1.35	Fine
23	31.1	22.8	17	17	65	63	0.0	9.7	5.1	10.2	24.3	24.5	1.28	Fine
24	31.8	23.8	17	20	69	85	0.0	9.9	10.0	10.0	23.7	23.8	1.21	Fine
25	31.5	24.5	17	18	66	70	2.5	10.4	5.7	5.5	16.1	16.4	0.85	Lt Cloud, Shower
26	31.9	24.8	16	18	60	69	0.0	8.8	6.6	10.9	25.9	25.9	1.35	Fine
27	31.9	24.4	16	18	61	75	0.0	8.3	8.5	10.1	24.0	24.0	1.27	Fine
28	32.1	24.0	17	18	71	72	0.0	11.0	8.3	10.5	25.0	24.8	1.31	Fine
29	31.8	23.8	17	19	69	82	0.0	10.3	9.2	10.8	25.7	25.7	1.37	Fine
30	31.4	20.1	16	17	63	71	0.0	8.5	10.9	10.7	25.4	25.1	1.33	Fine
	Temperature C°		Humidity		Rain	Evap.	Radiation							
	Max	Min	Dew	Point	am	pm	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	31.6	22.5	17	18	66	75		9.5	7.0	10.2	24.3	24.35	1.27	
Total							4.5	284.9	209.2	305.8	730.0	730.4	38.03	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langley's divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.

**17,462 17,470 Total Langley's**  
**728 728 Avg. Langley's**



# Allunga Exposure Laboratory

W: www.allunga.com.au E: test@allunga.com.au Latitude: 19°S Longitude: 147°E  
 Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

## December 2019 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m <sup>2</sup> )			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	32.2	23.5	18	19	65	80	0.0	7.6	6.5	9.8.33	23.1	22.5	1.15	Fine, Lt Cloud
2	34.9	22.7	20	21	75	83	3.5	7.2	9.2	6.7	20.8	20.5	1.10	Rain, Fine
3	37.1	20.7	16	18	55	72	0.0	9.6	7.1	9.5	23.9	23.6	1.24	Fine
4	34.1	22.0	17	19	63	79	0.0	11.0	7.0	10.2	25.1	24.3	1.31	Fine
5	33.7	26.1	16	20	58	82	0.0	8.0	6.6	9.9	23.4	22.9	1.20	Fine, Lt Cloud
6	32.9	26.9	17	19	60	75	0.0	8.6	9.3	8.4	23.1	22.5	1.20	Fine, Lt Cloud
7	32.8	24.5	18	20	65	81	0.0	8.0	4.8	10.5	24.2	23.8	1.27	Fine
8	32.9	25.4	20	23	74	85	0.0	7.8	6.9	9.9	25.1	24.6	1.34	Fine
9	32.9	24.2	19	22	67	84	0.0	8.6	8.5	9.5	24.5	24.0	1.28	Fine
10	33.4	25.6	19	23	68	83	0.0	7.8	5.6	8.5	22.0	21.4	1.13	Fine, Lt Cloud
11	33.9	25.1	20	23	69	85	0.0	9.4	7.6	10.2	25.0	24.5	1.32	Fine
12	33.0	25.3	20	24	71	91	0.5	8.2	5.0	10.4	24.7	24.0	1.25	Fine
13	34.0	24.3	18	19	61	63	0.0	7.2	0.0	10.5	24.6	23.8	1.22	Fine
14	33.0	23.9	18	18	63	62	0.0	9.6	0.0	7.5	21.9	22.5	1.21	Fine
15	33.4	26.6	19	22	66	74	0.0	10.2	7.6	9.7	24.4	23.9	1.27	Fine
16	35.7	26.0	19	23	66	80	0.0	8.0	2.8	10.1	24.7	24.1	1.28	Fine
17	33.2	26.1	18	22	59	74	0.0	6.6	0.0	10.5	24.8	24.2	1.25	Fine
18	33.8	25.9	18	22	61	80	0.0	7.4	6.3	8.3	22.3	22.0	1.16	Fine, Lt Cloud
19	33.3	24.2	19	23	65	82	0.0	8.8	5.8	9.6	23.9	23.4	1.23	Fine
20	33.0	25.5	19	23	69	83	0.0	11.0	6.5	9.8	23.9	23.3	1.21	Fine
21	32.2	24.9	18	23	64	85	0.0	11.0	4.1	8.9	22.2	21.9	1.12	Fine, Lt Cloud
22	32.7	23.7	17	18	51	60	0.0	10.4	0.0	9.7	24.5	24.3	1.31	Fine
23	32.7	24.5	17	19	53	64	0.0	9.6	0.0	10.0	24.3	23.8	1.24	Fine
24	33.1	24.5	18	22	65	74	0.0	10.6	5.3	10.6	24.9	24.3	1.29	Fine
25	34.2	23.8	19	22	69	78	0.0	8.0	6.7	10.5	24.7	23.8	1.24	Fine
26	32.8	26.5	19	23	67	82	0.0	6.8	6.5	7.1	18.7	18.5	1.02	Fine, Lt Cloud
27	33.3	24.4	18	23	60	84	1.0	7.6	7.4	8.6	24.1	23.6	1.25	Shower, Fine
28	32.6	24.6	18	22	61	82	0.0	7.4	7.0	10.2	23.7	23.3	1.22	Fine
29	32.3	24.0	18	23	64	85	0.0	10.2	6.8	8.8	23.6	23.0	1.20	Fine
30	32.6	24.0	18	21	62	79	0.0	7.6	8.5	9.1	23.1	22.5	1.18	Fine, Lt Cloud
31	33.5	24.9	18	22	64	83	0.0	8.0	5.8	9.3	24.9	24.2	1.32	Fine, Lt Cloud

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	33.4	24.7	18.3	21.3	63.9	78.5	8.6	5.5	9.4	23.7	23.2	1.2
Total					5.0	267.8	171.2	282.5	734.1	719.2	38.0	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer  
 For Langleys divide MJ/m<sup>2</sup> by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

**17,560 17,204 Total Langleys**  
**732 717 Avg. Langleys**

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m<sup>2</sup> (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.  
 Condensation is primary source of moisture.