



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

2017 Weather Record Overview: Townsville

	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)		
	Ambient		Dew Point						Time	Shine			UV-R
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz
January	32.3	25.3	22.2	22.5	70	79	175.0	242.4	303.2	296.1	707.8	701.1	37.98
Febuary	32.5	24.9	22.8	22.9	69	73	146.5	238.6	229.4	275.8	679.4	670.3	36.13
March	32.1	23.1	20.8	21.5	65	75	179.0	238.8	281.3	296.2	635.0	694.0	35.34
April	30.4	20.9	17.4	18.2	61	69	31.5	237.0	179.3	266.1	540.5	622.4	29.96
May	28.6	18.7	17.1	17.6	68	74	8.0	207.6	247.6	273.6	519.7	598.2	26.15
June	26.6	16.0	13.5	15.5	64	76	4.0	161.8	224.3	258.5	482.8	577.2	23.02
July	26.6	15.8	13.2	15.1	68	76	1.0	156.6	204.5	264.7	460.5	557.5	25.25
August	27.4	15.7	13.1	14.5	65	73	7.5	189.4	179.8	296.9	535.9	644.3	30.44
September	28.7	17.3	17.2	17.9	65	76	2.5	224.0	254.7	297.9	600.9	687.1	32.75
October	29.3	22.5	18.9	19.3	68	76	86.0	212.8	255.9	298.8	668.2	693.9	34.86
November	30.6	23.1	20.0	20.5	64	75	41.0	286.0	193.7	316.8	700.6	710.8	37.39
December	32.4	24.3	21.7	22.7	64	75	22.5	283.0	199.4	322.2	719.3	696.9	38.29
Average	29.8	20.6	18.2	19.0	66.0	74.7	58.7	223.2	229.4	288.6	604.2	654.5	32.3
Total							704.5	2678.0	2753.1	3463.6	7250.6	7853.7	387.56

173,434 **187,860** Total Langley's
15,655 Average Langley's per month

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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



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January 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m ²)			Remarks		
	Ambient Max	Ambient Min	Dew Point 9am	Dew Point 9pm					9am	9pm	Horiz		19°N	UV-R
1	33.9	25.3	23	22	68	80	0.0	8.0	6.7	9.4	25.8	25.1	1.32	Fine
2	34.9	27.3	24	24	70	81	0.0	10.0	9.3	11.8	19.4	19.2	0.99	Fine, Lt Cloud
3	34.4	24.2	24	23	56	76	0.5	6.2	8.9	11.1	25.9	25.1	1.32	Fine
4	33.6	25.6	22	22	70	76	0.0	8.0	9.6	11.5	23.7	23.0	1.21	Fine
5	33.3	24.7	23	23	72	84	5.0	8.0	9.9	11.9	21.4	20.7	1.09	Fine, Lt Cloud
6	31.3	24.7	22	23	91	82	35.0	7.6	14.5	2.5	7.4	7.4	0.38	Fine, Cloud, Rain
7	31.4	24.7	22	24	78	76	36.0	4.6	15.1	8.5	17.0	16.4	0.87	Fine, Cloud, Rain
8	32.5	25.1	22	24	64	81	0.0	8.0	10.8	11.8	20.3	19.7	1.04	Fine
9	32.7	25.7	22	22	66	68	0.5	6.6	12.7	12.3	18.9	18.3	0.97	Fine
10	33.1	26.0	21	21	63	71	0.0	7.6	4.3	7.3	27.7	26.9	1.42	Fine
11	32.7	25.6	21	22	68	96	0.5	9.8	2.1	3.4	24.9	24.1	1.27	Fine
12	31.5	26.0	21	22	84	88	19.0	9.0	14.1	0.3	24.2	23.5	1.24	Fine, O/N Rain
13	32.3	26.8	19	20	80	76	0.5	6.8	17.1	1.8	23.5	22.8	1.20	Fine
14	32.5	27.1	20	19	76	68	1.5	6.2	13.8	12.5	9.9	9.6	0.61	Fine
15	28.9	24.8	20	22	89	78	6.0	3.2	11.1	9.7	13.2	13.1	0.68	Fine
16	30.5	24.2	20	23	89	83	32.5	4.0	11.7	11.6	27.6	26.9	1.41	Fine, O/N Storm
17	31.0	25.4	21	22	78	75	4.5	6.2	10.0	12.5	28.8	27.8	1.47	Fine
18	31.3	25.5	22	21	64	75	0.0	8.0	8.9	12.0	29.3	28.5	1.50	Fine
19	32.8	25.3	22	22	66	81	0.0	8.0	7.8	12.6	29.2	28.3	1.46	Fine
20	32.6	24.8	22	23	55	83	0.0	10.8	8.3	12.4	29.0	28.1	1.50	Fine
21	33.0	24.2	22	25	67	88	0.0	9.0	12.1	11.8	29.1	28.2	1.49	Fine
22	32.4	25.5	22	25	56	85	0.0	7.4	11.8	10.8	29.2	28.3	1.51	Fine
23	32.9	26.3	26	24	60	79	0.5	11.8	9.6	10.8	28.8	28.0	1.47	Fine
24	31.5	24.7	24	21	70	70	19.0	7.4	10.3	8.5	15.0	14.9	0.75	Fine, Showers
25	31.3	25.4	24	24	73	88	0.0	6.8	9.8	7.7	21.3	20.5	1.09	Fine, Lt Cloud
26	32.2	24.6	23	22	67	74	0.0	8.2	10.2	10.6	27.2	26.2	1.39	Fine
27	32.0	25.0	22	21	64	75	1.5	11.2	5.8	11.2	29.0	27.9	1.48	Fine
28	32.3	26.3	23	25	70	85	0.0	8.6	4.1	10.0	28.6	27.7	1.46	Fine
29	32.5	26.1	26	24	64	79	1.5	9.2	8.5	10.2	28.0	27.4	1.43	Fine, Lt Cloud
30	32.5	24.0	24	22	59	71	0.0	9.8	6.2	9.5	22.2	21.9	1.14	Fine, Lt Cloud
31	31.4	24.4	20	22	74	90	11.0	6.4	8.1	8.1	15.6	15.6	0.70	Fine, Showers

	Temperature C°				Humidity		Rain mm	Evap. mm	Wet Hr	Sun Hr	Radiation			
	Max	Min	Dew Point		am	pm					Horiz	19° N	UV-R	
Avg.	32.3	25.3	22.2	22.5	70.0	79.4		7.8	9.8	9.6	23.3	22.62	1.19	
Total								175.0	242.4	303.2	296.1	721.2	701.1	36.80
												17,251	16,770	Total Langley's
												556	541	Average Langley's

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
 (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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



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February 2017 Daily Weather Record

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks
	Ambient		Dew Point		9am	9pm	mm	mm	Time	Shine	UV-R			
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	
1	31.9	23.3	20	22	79	70	54.5	4.8	12.3	9.5	22.7	21.8	1.12	Fine, O/N Storm
2	31.9	25.8	19	21	71	70	0.5	7.0	8.8	11.3	28.3	27.1	1.48	Fine
3	31.9	24.8	19	21	69	79	5.5	8.6	9.1	11.3	28.9	27.5	1.50	Fine, O/N Rain
4	31.9	24.8	21	22	72	62	0.0	9.6	6.8	10.5	24.7	23.7	1.22	Fine
5	32.3	25.7	24	24	76	61	1.5	9.4	7.7	9.9	25.8	24.7	1.33	Fine
6	31.9	25.0	23	22	57	66	0.0	8.0	4.7	11.1	28.2	27.1	1.43	Fine
7	32.6	25.2	23	23	63	67	1.5	9.6	10.1	10.4	25.6	24.7	1.27	Fine
8	33.3	24.8	21	20	66	86	0.5	10.2	8.3	11.2	26.8	25.8	1.38	Fine
9	33.6	25.0	20	22	60	81	0.0	10.6	6.9	11.0	28.4	27.4	1.51	Fine
10	32.5	25.8	20	21	64	75	0.0	9.8	9.2	10.3	26.9	26.0	1.40	Fine
11	32.1	25.7	23	23	65	60	0.0	10.4	8.5	9.7	23.7	22.3	1.19	Fine
12	33.4	24.5	24	23	70	74	0.0	6.4	7.6	10.9	27.8	26.9	1.39	Fine
13	35.9	25.7	23	24	66	83	0.0	10.2	8.0	11.3	28.2	27.4	1.45	Fine
14	37.2	28.2	25	23	46	78	0.0	11.2	6.5	9.7	27.8	26.8	1.46	Fine
15	33.9	24.8	24	24	76	72	2.0	9.8	8.4	7.8	20.4	19.9	0.99	Fine, Lt Cloud
16	29.4	23.7	24	24	94	93	38.5	5.0	15.6	4.3	7.7	7.6	0.35	Cloud, Rain
17	31.7	22.9	25	25	73	81	14.0	11.6	9.7	11.0	27.3	26.4	1.36	Fine, O/N Rain
18	32.2	24.7	24	24	75	78	0.0	8.0	7.6	9.7	25.4	24.5	1.25	Fine
19	32.7	25.7	23	23	69	64	0.0	5.8	6.8	9.5	23.1	22.3	1.18	Fine
20	32.2	24.9	22	24	71	68	2.0	5.8	6.2	8.6	21.9	21.4	1.11	Fine, Lt Cloud
21	31.5	26.3	25	24	82	72	0.0	4.8	7.0	8.8	21.1	20.5	1.09	Fine, Lt Cloud
22	32.5	25.0	25	25	73	63	0.0	6.4	7.9	10.2	24.4	23.8	1.22	Fine
23	31.3	24.3	24	24	71	80	20.0	8.2	10.2	6.6	17.9	17.6	0.81	Fine, Storm, Rain
24	32.4	25.9	24	23	65	70	0.5	9.6	8.5	11.0	27.2	26.5	1.40	Fine
25	31.9	24.4	24	21	73	71	0.0	10.6	7.4	9.1	22.9	22.2	1.12	Fine
26	31.9	23.6	21	23	65	74	0.0	8.8	7.9	10.8	26.8	26.0	1.41	Fine
27	32.1	22.9	25	23	62	61	0.0	10.0	4.5	10.5	27.2	26.2	1.39	Fine
28	32.2	23.7	24	23	64	77	5.5	8.4	7.2	9.8	26.5	26.2	1.33	Fine, O/N Rain

	Temperature C°				Humidity		Rain	Evap.	Wet Hr	Sun Hr	Radiation		
	Max	Min	Dew Point		am	pm	mm	mm			Horiz	19° N	UV-R
Avg.	32.5	24.9	22.8	22.9	69.2	72.7		8.5	8.2	9.9	24.8	23.94	0.99
Total							146.5	238.6	229.4	275.8	693.3	670.35	35.14

16,585 16,035 Total Langleys
592 573 Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
 (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance
 exceeds 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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March 2017 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks
	Ambient		9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
	Max	Min							Hours	Hours				
1	34.1	24.4	20	25	68	83	0.0	8.0	9.7	10.5	25.3	26.6	1.35	Fine
2	34.2	23.5	19	24	77	78	0.0	8.0	11.1	11.2	25.7	27.2	1.33	Fine
3	33.6	24.6	24	24	73	78	0.0	10.2	10.1	9.7	24.1	25.3	1.07	Fine
4	33.2	25.4	24	21	68	69	0.0	7.8	4.4	7.8	18.6	19.7	0.91	Fine, Lt Cloud
5	31.7	26.8	20	20	63	66	0.0	7.2	5.6	9.7	19.6	20.6	0.96	Fine, Lt Cloud
6	30.5	23.5	22	23	80	82	8.5	10.2	12.1	3.9	11.7	12.3	0.64	Fine, Cloud, Rain
7	31.1	22.0	21	22	69	79	3.0	5.8	15.4	9.6	20.1	21.3	1.05	Fine, Cloud, Rain
8	31.4	22.6	21	20	67	69	11.0	6.2	16.6	10.4	21.8	23.1	1.13	Fine, O/N Rain
9	31.8	22.0	21	21	67	72	9.5	7.4	12.0	10.1	22.0	23.5	1.15	Fine, O/N Rain
10	30.9	21.9	22	22	68	75	7.0	7.6	8.4	9.7	25.2	26.7	1.33	Fine, O/N Rain
11	32.2	23.2	23	22	70	72	0.0	8.2	6.1	10.2	24.9	26.4	1.27	Fine
12	30.3	23.8	22	23	68	91	0.0	4.4	4.6	5.5	14.6	15.4	0.80	Fine, O/N Rain
13	31.9	23.5	19	22	58	76	13.5	4.8	13.3	10.9	21.9	23.3	1.16	Fine
14	33.0	22.1	18	20	54	72	0.0	7.4	4.0	11.0	24.5	26.1	1.31	Fine
15	34.5	21.9	19	21	61	67	0.0	8.0	9.0	10.9	23.7	25.2	1.27	Fine
16	34.1	22.0	23	23	69	75	0.0	8.0	9.8	11.3	22.9	24.9	1.21	Fine
17	35.1	22.2	20	25	56	85	0.0	6.2	8.3	11.3	23.8	25.4	1.28	Fine
18	34.7	23.3	20	24	54	76	0.0	11.0	5.2	11.2	24.3	26.5	1.32	Fine
19	32.4	23.4	23	23	67	73	8.5	9.6	9.6	9.5	19.5	21.2	1.05	Fine, Showers
20	32.1	24.0	20	20	59	71	24.5	8.6	11.4	10.9	23.4	25.6	1.22	Rain, Fine
21	31.2	23.6	21	19	62	75	4.5	8.0	8.7	10.3	22.1	24.1	1.12	Fine
22	31.0	22.9	20	21	59	72	0.0	8.0	3.3	10.6	19.1	20.9	1.10	Fine
23	31.3	23.7	20	20	64	69	31.0	9.0	12.5	7.5	15.1	16.4	0.83	Fine, O/N Rain
24	31.0	23.0	19	19	63	72	19.5	8.6	10.7	6.8	14.5	15.7	0.75	Fine, Showers
25	30.5	21.4	19	20	62	66	9.5	8.2	10.6	11.0	21.4	23.6	1.18	Fine, Lt Cloud
26	30.2	22.0	19	20	61	73	0.0	9.4	6.9	9.9	22.1	23.7	1.15	Fine
27	30.0	23.2	19	20	63	71	5.5	7.8	10.7	10.9	22.2	23.9	1.19	Fine
28	31.0	22.3	21	21	69	78	23.5	2.0	15.6	3.1	8.2	8.7	0.45	Cyclone Debbie
29	32.0	22.5	22	22	72	81	0.0	8.0	8.8	10.4	23.3	25.1	1.27	Fine, Lt Cloud
30	31.5	23.4	22	22	65	73	0.0	5.4	6.8	10.5	20.7	22.4	1.18	Fine, Lt Cloud
31	32.2	22.1	22	17	66	75	0.0	9.8	0.0	9.9	21.6	23.2	1.21	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hr	Sun Hr	Horiz	19° N	UV-R	
Avg.	32.1	23.1	20.8	21.5	65.2	74.6	7.7	9.1	9.6	20.9	22.39	1.10
Total					179.0	238.8	281.3	296.2	648.0	694.0	34.24	

15,500 16,600 Total Langleys
500 535 Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
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Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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April 2017 Daily Weather Record

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks
	Ambient		Dew Point		9am	9pm	mm	mm	Hours	Shine	Horiz	19°N	UV-R	
	Max	Min	9am	9pm	9am	9pm			Hours	Hours			Horiz	
1	31.2	18.8	18	19	62	77	0.0	7.8	7.4	11.0	22.2	24.9	1.19	Fine
2	31.5	22.4	18	18	65	75	0.0	7.6	3.5	11.0	23.7	26.5	1.22	Fine
3	30.7	21.6	17	18	60	70	0.0	7.6	8.0	10.3	22.7	25.3	1.15	Fine
4	31.0	22.7	18	19	59	67	0.0	9.8	4.2	10.9	19.2	21.5	1.03	Fine
5	31.2	21.5	18	21	64	77	0.0	11.0	2.3	6.4	14.8	16.2	0.76	Fine, Lt Cloud, Shower
6	31.4	22.4	19	20	62	67	5.5	7.0	7.5	10.5	21.5	24.1	1.13	Fine
7	31.1	19.8	19	19	64	68	0.0	7.8	8.7	10.8	23.4	26.3	1.22	Fine
8	30.8	18.9	19	21	63	74	0.0	8.6	10.8	10.6	22.9	25.9	1.18	Fine
9	31.3	22.6	19	19	59	64	0.0	6.2	8.1	10.3	21.1	23.8	1.14	Fine
10	30.7	23.2	18	19	58	73	0.0	10.0	9.9	6.3	15.0	16.1	0.81	Fine, Cloud
11	31.1	20.6	17	19	58	67	2.5	4.6	8.7	7.9	17.7	19.7	0.87	Shower, Fine
12	31.2	22.3	18	18	68	61	0.0	7.8	0.0	7.6	19.5	21.7	0.99	Fine, Lt Cloud
13	29.9	19.8	18	18	60	64	0.0	8.2	5.9	7.4	15.6	17.3	0.75	Fine, Lt Cloud
14	31.2	21.5	17	18	57	67	0.0	6.6	9.5	11.0	21.1	24.1	1.16	Fine
15	30.5	18.8	19	19	66	65	0.0	7.2	11.5	11.0	18.2	20.9	1.16	Fine
16	31.0	21.1	17	18	57	62	0.0	9.6	7.5	10.7	17.8	20.3	1.11	Fine
17	31.3	20.6	16	19	54	68	0.0	10.6	3.9	10.0	18.1	20.6	0.87	Fine
18	30.5	22.2	17	18	55	68	8.5	8.4	4.3	7.3	17.0	19.0	0.86	Shower, Fine, Lt Cloud
19	30.4	20.7	18	19	63	73	0.0	6.0	7.5	8.5	17.3	19.6	0.87	Fine
20	30.7	20.8	17	16	61	58	0.0	8.2	1.5	6.6	16.3	18.2	0.92	Fine, Lt Cloud
21	30.5	21.0	16	16	52	59	0.0	8.0	0.0	10.2	20.1	23.2	1.09	Fine
22	30.2	21.2	16	19	57	84	0.0	11.2	2.6	6.1	16.2	17.9	0.84	Fine, Lt Cloud
23	30.6	30.4	16	17	51	65	0.0	8.0	3.8	9.3	21.4	24.5	1.15	Fine
24	26.7	19.5	17	19	69	80	6.5	9.0	8.8	0.3	7.9	8.3	0.50	Fine, Cloud, Shower
25	29.2	18.3	18	18	65	70	7.5	1.2	12.3	6.4	14.9	16.7	0.80	Fine, Lt Cloud
26	28.8	20.4	16	16	59	62	1.0	5.8	5.2	10.4	14.6	17.0	0.92	Fine
27	30.0	19.5	17	16	62	65	0.0	7.6	0.7	9.6	16.2	18.7	0.82	Fine
28	29.3	18.1	17	17	59	68	0.0	7.6	8.4	10.2	20.3	23.7	0.98	Fine
29	29.6	17.9	15	17	61	70	0.0	8.6	3.6	10.7	19.8	23.2	0.76	Fine
30	29.0	19.3	17	17	66	72	0.0	9.4	3.2	6.8	15.2	17.2	0.74	Fine, Lt Cloud

Avg.	Temperature C°				Humidity		Rain	Evap.	Wet Hr	Sun Hr	Radiation		
	Max	Min	Dew	Point	am	pm	mm	mm			Horiz	19° N	UV-R
	30.4	20.9	17.4	18.2	60.5	68.7		7.9	6.0	8.9	18.4	20.75	0.97
Total							31.5	237.0	179.3	266.1	551.5	622.4	28.99
											13,191	14,888	Total Langleys
											440	496	Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
 (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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



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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 2017 Daily Weather Record

Date	Temperature (°C)		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks		
	Ambient		Dew Point		mm	mm	Time	Shine	Horiz	19°N				
	Max	Min	9am	9pm						9am	9pm		Hours	Hours
1	29.9	19.6	15	17	65	72	0.0	7.0	5.5	8.0	16.2	18.2	0.82	Fine
2	29.4	18.9	16	17	59	70	0.0	6.6	8.1	10.3	19.0	22.1	0.92	Fine
3	28.5	15.4	15	17	63	77	0.0	9.0	4.9	10.5	20.1	23.5	1.01	Fine
4	28.8	15.9	16	17	67	76	0.0	6.8	12.3	10.2	18.1	21.1	0.86	Fine
5	28.3	15.5	16	16	63	69	0.0	8.0	10.1	10.4	20.5	23.9	1.00	Fine
6	28.6	15.0	17	16	67	66	0.0	6.4	5.4	10.8	18.6	22.0	0.93	Fine
7	29.3	16.5	16	18	63	69	0.0	6.0	8.6	10.5	18.0	21.2	0.90	Fine
8	28.7	17.6	17	17	66	71	0.0	6.0	10.2	10.2	17.5	20.6	0.86	Fine
9	28.1	18.4	17	18	64	78	0.0	7.4	9.7	10.8	19.5	22.6	0.97	Fine
10	28.6	17.7	18	20	71	85	0.0	6.2	12.1	10.5	18.4	20.2	0.92	Fine
11	28.0	17.5	18	19	72	73	0.0	5.2	11.9	10.0	17.2	20.2	0.85	Fine
12	28.5	17.3	18	19	70	79	0.0	6.6	10.7	10.2	18.5	21.9	0.91	Fine
13	28.8	20.2	21	20	78	85	0.0	4.2	11.1	10.2	17.2	20.3	0.91	Fine
14	30.2	19.6	20	21	76	80	0.0	5.8	11.2	10.5	17.1	20.1	0.86	Fine
15	29.1	18.5	19	20	71	78	1.5	6.4	12.1	9.9	18.7	22.1	0.92	Fine O/N Shower
16	29.4	22.1	20	18	74	70	0.5	6.2	14.5	9.9	13.9	16.0	0.67	Fine, Mist
17	28.3	22.4	18	17	64	66	0.0	9.0	8.0	8.2	15.6	17.8	0.70	Fine
18	28.6	20.7	15	15	58	65	0.0	8.0	0.0	8.7	16.7	19.4	0.80	Fine
19	27.7	18.7	14	18	55	84	0.0	9.4	5.3	5.7	14.2	16.0	0.58	Fine, Lt Cloud
20	28.1	18.4	15	16	60	67	0.5	3.6	4.4	8.9	14.2	16.7	0.67	Fine,
21	28.0	19.5	19	17	74	71	0.0	8.4	0.0	10.0	19.1	21.9	0.94	Lt Cloud
22	27.8	17.6	17	18	68	83	0.0	6.4	8.3	8.8	17.0	19.9	0.89	Fine
23	28.5	16.9	17	18	72	74	0.0	6.0	10.3	7.0	13.1	14.5	0.62	Fine
24	28.7	20.1	18	18	68	69	0.0	6.4	6.7	4.1	13.4	14.7	0.74	Fine, Lt Cloud
25	29.3	21.6	19	19	69	74	0.0	5.6	0.0	6.3	14.9	16.6	0.66	Fine, Lt Cloud
26	29.1	18.4	16	15	62	61	0.0	5.2	11.7	10.2	18.9	21.6	0.93	Fine
27	29.5	20.8	13	13	50	53	0.0	9.4	0.0	8.3	17.5	20.5	0.73	Fine
28	28.5	21.6	14	17	61	82	0.0	9.8	3.5	5.3	13.3	14.9	0.64	Fine, Lt Cloud
29	28.2	19.6	16	17	78	83	1.0	7.2	11.3	6.3	13.5	15.4	0.64	Fine, Lt Cloud, Shower
30	27.0	20.3	21	18	92	81	2.5	5.8	8.8	3.3	10.3	11.1	0.53	Cloud, Showers
31	27.5	17.2	19	19	81	80	2.0	3.6	10.9	9.6	19.4	21.2	0.95	Shower, 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.	28.6	18.7	17.1	17.6	67.8	73.9		6.7	8.0	8.8	16.8	19.30	0.82
Total							8.0	207.6	247.6	273.6	519.7	598.2	25.33
											12,431	14,309	Total Langley's
											401	462	Average Langley's

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
 (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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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 2017 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)		UV-R	Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz	
1	27.8	20.6	20	20	86	87	1.0	4.6	7.0	7.6	15.0	17.4	0.72	Fine
2	27.3	18.9	21	18	87	91	0.0	4.6	10.3	7.4	14.2	15.9	0.69	Fog, Fine
3	27.7	18.2	21	20	94	90	0.0	3.6	8.2	8.5	17.8	20.5	0.75	Fog, Fine
4	27.0	17.8	19	20	76	85	0.0	4.0	10.9	9.2	11.8	13.8	0.66	Fine, O/N Shower
5	27.5	21.4	20	20	88	87	2.5	5.4	12.5	4.0	10.4	11.3	0.47	Fine
6	26.8	20.5	11	15	47	71	0.0	3.2	9.2	10.3	18.4	21.9	0.84	Fine
7	26.4	11.9	8	9	45	58	0.0	6.0	4.2	10.3	19.3	23.0	0.88	Fine
8	26.2	11.7	0	7	26	49	0.0	7.0	0.0	10.7	19.5	23.4	0.90	Fine
9	26.7	9.7	7	14	43	73	0.0	6.6	0.0	10.6	19.1	22.9	0.83	Fine
10	26.1	14.6	14	17	65	84	0.0	5.4	12.2	10.3	15.6	18.6	0.70	Fine
11	26.5	14.4	17	17	76	89	0.0	4.0	13.0	10.0	17.3	20.5	0.79	Fog, Fine
12	28.2	14.9	18	18	84	87	0.0	4.0	13.8	9.0	17.2	20.2	0.77	Fog, Fine
13	27.7	15.8	3	14	30	67	0.0	5.4	13.9	10.9	19.5	23.4	0.91	Fine
14	24.4	12.6	3	11	34	62	0.0	6.6	10.6	10.4	19.5	23.4	0.92	Fine
15	26.8	11.9	10	12	55	57	0.0	6.0	10.3	8.5	18.5	21.4	0.82	Fine
16	27.3	19.1	15	14	62	61	0.0	8.0	9.9	5.0	11.7	12.3	0.60	Fine, Lt Cloud
17	27.1	18.3	15	15	63	74	0.0	6.8	9.3	6.1	12.5	14.0	0.60	Fine
18	27.5	17.6	15	17	64	80	0.0	5.6	8.6	10.3	15.1	18.1	0.75	Fine
19	26.7	17.4	16	16	71	84	0.0	4.8	4.6	10.5	17.7	21.2	0.81	Fine
20	28.3	12.9	16	16	78	75	0.0	4.8	11.3	10.5	18.1	21.8	0.79	Fine
21	26.6	13.7	16	16	76	79	0.0	5.0	11.3	10.3	18.1	21.7	0.79	Fine
22	24.5	12.3	15	14	85	77	0.0	4.6	13.2	10.4	19.0	22.7	0.79	Mist, Fine
23	26.2	11.8	10	17	54	81	0.0	6.2	6.7	10.4	18.9	22.7	0.79	Fine
24	26.0	16.6	15	14	65	61	0.0	3.4	0.0	1.3	9.8	10.2	0.47	Overcast
25	25.6	20.0	12	16	50	77	0.0	6.2	0.0	9.2	18.2	21.4	0.76	Fine
26	26.3	14.7	13	17	66	76	0.0	7.8	6.1	8.1	18.6	21.9	0.83	Fine
27	26.5	17.2	13	15	57	72	0.0	4.4	1.2	9.7	17.7	21.0	0.70	Fine
28	26.4	18.4	13	14	59	68	0.0	6.8	0.0	9.5	18.2	21.5	0.79	Fine
29	24.8	17.4	12	15	56	72	0.0	7.2	0.0	0.9	9.0	9.3	0.42	Overcast
30	26.5	18.8	16	17	73	93	0.5	3.8	6.0	8.6	17.0	19.8	0.75	Fine, Lt Cloud

Avg.	Temperature C°		Dew Point		Humidity		Rain	Evap.	Wet Hr	Sun Hr	Radiation		
	Max	Min	9am	9pm	am	pm	mm	mm			Horiz	19° N	UV-R
	26.6	16.0	13.5	15.5	63.8	75.6		5.4	7.5	8.6	16.4	19.24	0.74
Total							4.0	161.8	224.3	258.5	492.7	577.2	22.29
											11,785	13,807	Total Langleys
											393	460	Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B
 (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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



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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 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m ²)		UV-R		Remarks
	Max	Min	9am	9pm	9am	9pm					Horiz	19°N	Horiz		
1	24.6	19.7	12	15	67	74	0.0	4.0	3.5	8.7	15.8	18.8	0.78	Fine	
2	25.0	19.6	12	17	81	92	0.5	4.2	6.4	10.6	16.3	20.2	0.88	Fog, Fine	
3	25.8	19.7	12	16	65	85	0.0	5.8	4.0	5.6	8.9	10.3	0.55	Fine, Cloud	
4	26.7	16.5	14	15	79	86	0.0	4.0	5.9	5.7	13.0	14.9	0.65	Fine, Lt Cloud	
5	26.7	16.6	13	15	85	87	0.0	3.8	7.0	6.2	15.4	17.9	0.77	Fine, Lt Cloud	
6	26.5	16.1	13	14	81	87	0.0	3.6	4.8	9.4	15.6	18.9	0.80	Fine	
7	27.4	17.5	13	14	85	73	0.0	4.0	5.4	7.9	14.4	16.6	0.75	Fine, Lt Cloud	
8	27.1	15.9	14	16	85	87	0.0	4.0	7.1	10.5	16.7	20.6	0.88	Fine	
9	27.3	16.2	14	15	86	79	0.0	3.6	7.5	8.8	14.9	17.9	0.78	Fine	
10	28.0	17.4	15	18	82	77	0.0	4.4	5.3	8.0	13.1	15.5	0.66	Fine	
11	28.6	18.7	16	18	70	73	0.0	5.6	9.7	7.4	14.8	17.4	0.74	Fine	
12	26.6	18.0	17	17	65	82	0.0	6.0	3.0	10.7	16.3	19.1	0.84	Fine	
13	26.5	15.9	18	17	60	72	0.0	5.6	12.0	7.9	15.8	18.8	0.75	Fine	
14	24.9	16.8	10	14	69	79	0.0	6.4	7.0	10.8	17.8	21.6	0.92	Fine	
15	27.0	16.5	12	16	69	72	0.0	3.2	9.9	10.7	14.7	18.1	0.81	Fine	
16	27.4	14.6	13	16	73	85	0.0	5.2	11.3	4.9	11.2	12.4	0.66	Fine, Cloud	
17	26.5	14.9	15	13	76	66	0.5	5.0	7.6	10.1	17.7	21.2	0.90	Fog, Fine	
18	27.2	14.0	10	12	75	66	0.0	5.0	3.0	11.0	18.1	21.8	0.93	Fine	
19	28.1	14.4	11	16	81	60	0.0	4.0	0.0	9.3	13.7	15.9	0.64	Fine	
20	25.1	12.4	13	14	17	75	0.0	6.0	5.8	8.4	16.5	20.4	0.88	Fine	
21	24.8	13.0	10	14	59	73	0.0	5.8	3.2	9.4	16.1	18.7	0.82	Fine	
22	25.1	13.3	12	15	61	72	0.0	6.8	4.1	6.7	16.2	18.7	0.80	Fine, Lt Cloud	
23	25.8	13.5	12	14	65	72	0.0	3.6	5.7	10.7	16.6	20.2	0.88	Fine	
24	27.1	13.9	11	14	73	81	0.0	1.2	4.6	11.0	18.5	22.6	0.92	Fine	
25	26.8	15.4	13	14	59	68	0.0	6.0	8.5	3.5	11.4	12.6	0.69	Fine, Cloud	
26	27.2	13.0	14	14	51	71	0.0	5.8	3.5	3.3	8.1	8.9	0.44	Cloud	
27	26.6	14.0	14	15	56	79	0.0	7.6	10.0	9.7	14.9	17.7	0.84	Fine	
28	27.1	13.0	12	13	59	68	0.0	7.2	10.9	10.7	17.9	20.8	0.90	Fine	
29	27.5	14.1	12	13	53	74	0.0	6.6	8.6	9.2	18.1	21.5	0.93	Fine	
30	27.1	16.6	16	17	68	70	0.0	5.4	9.2	7.0	13.1	15.0	0.74	Fine, Lt Cloud	
31	27.6	18.8	15	16	64	68	0.0	7.2	10.0	10.9	18.7	22.6	0.93	Fine	

	Temperature C°				Humidity		Rain mm	Evap mm	Wet Hr	Sun Hr	Radiation		
	Max	Min	Dew Point	Point	am	pm					Horiz	19° N	UV-R
Avg.	26.6	15.8	13.2	15.1	68.4	75.8		5.1	6.6	8.5	15.2	17.98	0.79
Total							1.0	156.6	204.5	264.7	469.9	557.5	24.46

11,240 13,334 Total Langleys
363 430 Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds
 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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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 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m ²)		UV-R	Remarks		
	Ambient Max	Ambient Min	Dew Point 9am	Dew Point 9pm					9am	9pm			Horiz	19°N
1	26.5	14.6	14	13	69	74	0.0	6.6	4.7	10.3	18.1	21.3	0.95	Fine
2	26.6	14.7	12	14	70	69	0.0	5.8	3.5	3.3	9.2	10.3	0.43	Fine, Cloud
3	26.8	17.5	13	15	63	78	0.0	6.2	3.6	8.5	17.5	19.5	0.88	Fine
4	27.2	17.1	11	16	74	89	0.0	4.6	7.9	10.8	18.1	21.3	0.96	Fine
5	28.0	17.4	12	14	82	78	0.0	4.6	8.8	11.2	18.9	23.2	1.02	Fine
6	26.1	22.4	13	17	85	95	0.5	5.0	8.4	10.9	17.5	21.2	0.96	Fine, O/N Shwr
7	28.0	21.5	17	17	95	93	4.0	3.0	10.2	9.7	15.9	19.1	0.90	Fine
8	30.4	17.6	15	16	87	85	0.5	4.2	11.3	9.6	17.9	21.4	0.96	Fog, Fine
9	26.4	14.9	12	14	60	64	0.0	8.0	8.3	11.1	19.1	23.2	1.06	Fine
10	27.0	17.7	14	15	59	65	0.0	8.0	5.4	11.4	19.7	24.0	1.10	Fine
11	27.5	16.8	12	14	57	67	0.0	5.8	4.1	5.1	16.1	18.2	0.85	Fine, Cloud
12	27.3	15.6	12	12	48	56	0.0	5.6	0.0	10.7	18.6	22.3	0.98	Fine
13	27.4	13.6	11	15	57	76	0.0	8.0	5.0	9.5	17.5	20.7	0.92	Fine, O/N Shwr
14	27.6	13.7	12	13	65	79	2.5	6.4	11.5	10.5	18.2	21.8	0.99	Fine
15	27.1	14.5	14	13	70	72	0.0	5.6	5.0	10.7	19.4	23.1	1.03	Fine
16	27.7	14.9	12	15	69	73	0.0	4.8	2.6	11.1	18.2	21.9	0.94	Fine
17	28.0	15.1	14	14	66	68	0.0	6.4	4.7	7.9	14.9	17.5	0.86	Fine
18	28.9	15.4	13	15	73	70	0.0	5.8	4.4	11.2	19.7	23.5	1.07	Fine
19	30.4	15.2	13	16	67	74	0.0	3.6	8.1	10.4	19.4	23.0	1.02	Fine
20	25.7	13.2	12	12	48	68	0.0	9.8	3.0	10.5	20.0	23.6	1.05	Fine
21	24.9	13.0	12	14	46	67	0.0	6.6	6.5	11.0	19.0	22.6	0.99	Fine
22	27.0	13.4	14	13	64	70	0.0	5.0	13.5	8.4	15.6	18.1	0.92	Fine, Lt Cloud
23	27.2	17.5	15	17	59	69	0.0	6.4	2.3	5.2	15.3	17.1	0.85	Fine, Cloud
24	27.4	15.3	13	14	61	70	0.0	5.0	5.5	10.4	17.5	20.5	0.95	Fine
25	30.2	15.2	14	15	64	81	0.0	5.4	6.5	9.7	18.3	21.3	1.01	Fine
26	26.7	16.9	13	15	65	79	0.0	8.6	7.3	10.0	18.8	22.0	1.04	Fine
27	26.4	13.6	13	14	60	76	0.0	8.0	6.0	9.6	16.8	19.5	0.96	Fine
28	27.8	14.2	14	15	60	71	0.0	6.4	4.8	6.1	12.4	14.2	0.72	Fine, Cloud
29	27.5	15.0	14	14	52	63	0.0	6.4	0.0	10.4	20.0	23.3	1.05	Fine
30	27.4	15.7	13	15	55	69	0.0	6.2	2.5	10.7	19.4	22.6	1.01	Fine
31	27.2	14.6	13	15	58	68	0.0	7.6	4.4	11.0	20.0	23.2	1.06	Fine

	Temperature C°		Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation			
	Max	Min	Dew Point	am					pm	Horiz	19° N	UV-R
Avg.	27.4	15.7	13.1	14.5	64.8	73.5	6.1	5.8	9.6	17.6	20.8	0.95
Total					7.5	189.4	179.8	296.9		546.8	644.3	29.49
										13,078	15,411	Total Langley's
										422	497	Average Langley's

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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



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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 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m ²)		Remarks			
	Max	Min	9am	9pm					19°N	UV-R				
1	27.3	14.6	18	19	76	88	0.0	7.0	9.4	10.2	19.2	23.1	1.05	Fine
2	27.7	15.6	19	19	79	87	0.0	7.8	10.3	10.5	18.3	21.9	1.02	Fine, Lt Cloud
3	27.6	14.5	20	19	77	82	0.0	9.2	9.9	8.9	19.0	22.4	0.94	Fine
4	28.0	14.5	18	19	73	85	0.0	6.8	9.0	9.6	20.4	23.2	1.09	Fine
5	29.2	15.6	20	21	77	84	0.0	7.8	8.6	9.2	18.3	21.5	0.98	Fine, Lt Cloud
6	30.3	15.6	15	18	69	80	0.0	3.4	8.6	10.7	21.6	25.7	1.06	Fine
7	28.3	14.6	17	17	66	75	0.0	8.0	10.7	10.9	22.3	25.6	1.09	Fine
8	27.8	16.1	16	18	63	78	0.0	7.6	5.1	10.7	17.8	21.2	1.04	Fine, Lt Cloud
9	27.8	15.1	16	17	64	73	0.0	8.0	11.4	10.8	19.7	22.4	1.09	Fine
10	27.9	18.1	16	15	62	69	0.0	7.4	5.1	10.9	20.6	24.4	1.08	Fine
11	28.1	16.6	17	17	67	74	0.0	8.4	11.9	10.1	20.7	24.5	1.09	Fine
12	28.3	18.4	16	17	58	73	0.0	7.8	7.2	10.8	21.7	24.6	1.10	Fine
13	28.5	21.0	16	16	63	69	0.0	7.6	10.2	11.0	16.7	19.8	0.79	Fine, Lt Cloud
14	33.7	19.0	14	17	58	74	0.0	7.2	5.7	6.8	14.1	16.3	0.84	Fine, Cloud
15	28.1	18.2	16	18	66	82	0.0	5.4	11.2	6.1	14.9	16.3	0.72	Fine, Cloud
16	27.9	16.0	18	17	68	71	0.0	9.0	8.8	9.0	18.6	19.8	0.97	Fine, Lt Cloud
17	29.5	14.8	17	18	66	82	0.0	8.8	8.8	10.2	22.6	23.8	1.19	Fine
18	28.8	16.2	19	20	69	82	0.0	9.2	10.3	9.9	17.9	20.0	0.96	Fine, Cloud
19	24.7	22.2	19	19	66	78	0.0	8.0	9.3	7.7	21.4	23.8	1.12	Fine
20	28.7	19.2	18	19	65	79	2.5	2.0	12.1	10.8	22.6	24.6	1.20	Fine, O/N Shwr
21	28.5	16.6	19	20	69	82	0.0	5.6	9.5	11.1	20.7	22.5	1.19	Fine
22	29.6	19.6	19	19	68	81	0.0	7.0	9.2	10.3	23.1	24.9	1.15	Fine
23	28.8	20.4	18	19	65	78	0.0	8.4	10.7	11.1	22.2	23.7	1.01	Fine
24	28.4	18.5	19	20	65	78	0.0	9.2	5.8	8.8	19.4	20.9	0.91	Fine, Lt Cloud
25	28.4	15.5	21	22	74	90	0.0	7.2	5.0	7.7	18.5	20.0	0.95	Fine, Lt Cloud
26	29.5	15.4	15	17	48	70	0.0	7.4	7.2	11.2	24.6	26.4	1.22	Fine
27	30.4	17.6	17	14	62	61	0.0	7.2	9.4	10.6	25.9	27.9	1.25	Fine
28	28.9	21.3	12	15	45	61	0.0	7.0	5.7	10.5	24.1	25.9	1.19	Fine
29	29.5	18.4	13	14	50	57	0.0	9.6	1.4	10.8	23.8	25.7	1.22	Fine
30	30.4	20.4	17	16	61	66	0.0	9.0	7.2	11.0	22.5	24.3	1.18	Fine

	Temperature C°		Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation				
	Max	Min	Dew Point	am					pm	Horiz	19° N	UV-R	
Avg.	28.7	17.3	17.2	17.9	65.3	76.3	7.5	8.5	9.9	20.4	22.9	1.06	
Total							2.5	224.0	254.7	297.9	613.2	687.1	31.69
											14,667	16,435	Total Langley's
											489	548	Average Langley's

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds
 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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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 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m ²)			Remarks		
	Max	Min	9am	9pm					9am	9pm	Horiz		19°N	UV-R
1	29.7	24.1	15	16	69	68	0.0	6.6	8.2	10.4	26.0	25.6	1.17	Fine
2	29.8	24.4	18	19	66	80	0.5	4.2	4.4	10.9	25.6	25.1	1.20	Fine, O/N Shower
3	29.9	22.7	21	15	69	63	2.5	8.8	0.2	6.4	16.9	16.8	0.85	Shower, Fine
4	29.8	23.2	16	18	69	72	0.0	7.2	15.0	10.8	25.3	25.0	1.25	Fine
5	30.6	24.7	18	15	68	58	0.0	8.0	5.0	11.1	25.6	25.4	1.26	Fine
6	30.0	23.8	19	19	69	80	0.0	8.2	2.4	10.8	25.4	24.9	1.21	Fine
7	30.0	23.6	21	21	59	82	0.0	10.2	11.5	11.2	24.2	24.2	1.20	Fine
8	30.1	24.6	21	22	62	82	0.0	8.8	11.6	10.2	24.9	24.3	1.24	Fine
9	29.7	22.9	19	19	61	73	0.0	9.0	10.6	9.3	23.5	23.0	1.12	Fine
10	30.1	18.8	18	17	63	66	0.0	8.4	0.2	8.4	21.6	21.4	0.95	Fine
11	30.4	22.0	18	19	58	77	0.0	9.0	0.0	10.8	25.3	24.8	1.24	Fine
12	30.0	23.5	19	20	64	78	0.0	8.8	11.7	10.8	25.4	24.9	1.19	Fine
13	30.3	23.6	21	20	60	81	0.0	8.4	9.3	10.9	25.6	25.1	1.18	Fine
14	30.4	23.3	19	19	54	83	0.0	9.0	11.3	10.6	26.0	25.5	1.18	Fine
15	30.2	23.7	19	19	59	72	0.0	9.6	10.5	11.3	23.9	23.4	1.15	Fine
16	23.6	21.2	18	16	92	68	15.5	6.6	10.7	0.5	5.6	5.6	0.45	O/cast, Shwr
17	26.5	19.4	16	17	77	72	10.5	0.8	8.7	6.1	21.9	21.8	0.89	Rain, Fine
18	26.6	20.0	16	18	87	73	20.5	1.8	12.6	7.2	19.0	18.5	0.83	Fine, O/N shower
19	27.3	23.0	17	20	81	79	5.5	4.4	0.0	6.6	16.8	16.5	0.79	Showers, Fine
20	29.7	21.8	18	19	67	77	15.0	3.0	9.4	10.5	22.2	21.9	1.18	Rain, Fine
21	29.1	22.2	17	21	70	87	0.0	6.0	10.0	11.1	26.7	26.2	1.30	Fine, O/N Shower
22	27.8	21.5	19	21	78	78	9.0	4.8	4.7	8.5	15.2	15.1	0.73	Shower, Fine
23	29.2	20.0	21	23	66	89	0.0	4.4	4.3	11.3	19.9	19.7	0.88	Fine, Lt Cloud
24	28.8	22.5	21	21	73	78	4.5	6.8	8.0	11.1	24.6	24.3	1.17	Shower, Fine
25	29.0	22.4	23	23	61	84	0.0	6.4	11.8	6.9	14.2	14.0	0.70	Cloud, Fine
26	29.1	21.4	20	22	56	83	0.0	8.0	12.9	10.5	20.6	20.3	1.12	Fine
27	29.5	19.0	22	22	64	83	0.0	9.0	8.8	10.8	25.9	25.4	1.22	Fine
28	30.3	21.8	19	20	67	73	0.0	7.0	11.4	11.1	26.3	25.9	1.25	Fine
29	31.0	22.5	18	17	73	63	0.0	7.6	10.9	10.9	27.0	26.5	1.27	Fine
30	30.3	25.4	19	19	71	71	0.0	5.0	8.0	10.8	27.4	26.7	1.32	Fine, O/N Shower
31	31.0	25.3	20	20	77	78	2.5	7.0	11.8	11.0	26.7	26.1	1.28	Fine

	Temperature C°		Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation			
	Max	Min	Dew Point	am					pm	Horiz	19° N	UV-R
Avg.	29.3	22.5	18.9	19.3	68.1	75.8	6.9	8.3	9.6	22.7	22.4	1.09
Total					86.0	212.8	255.9	298.8	705.2	693.9	33.77	
									16,868	16,598	Total Langleys	
									544	535	Average Langleys	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds
 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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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 2017 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)		UV-R	Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	Horiz	
1	30.9	24.1	19	21	62	78	0.0	10.8	5.1	9.2	20.9	21.3	1.05	Fine
2	30.8	24.2	21	23	66	85	0.0	7.4	8.3	10.0	22.2	22.6	1.09	Fine
3	31.0	25.0	22	23	73	85	0.0	10.0	10.6	10.8	24.3	24.8	1.18	Fine
4	30.8	23.7	21	23	62	84	0.0	7.8	7.1	11.8	25.0	25.6	1.27	Fine
5	30.8	20.7	18	20	57	76	0.0	8.4	11.8	11.6	26.5	26.8	1.36	Fine
6	30.6	23.4	17	18	52	66	0.0	12.0	10.9	12.2	27.3	27.6	1.31	Fine
7	31.2	21.6	17	22	61	83	0.0	12.0	9.0	12.1	26.2	26.4	1.23	Fine
8	31.2	23.8	23	23	70	89	0.0	8.0	10.6	11.1	26.0	26.3	1.35	Fine
9	29.6	24.7	21	22	63	77	1.5	8.8	10.3	11.3	25.2	25.4	1.29	Fine, Shower
10	30.1	23.3	19	18	62	74	0.0	9.6	5.0	11.6	24.2	24.4	1.11	Fine
11	30.7	20.6	18	19	53	67	0.0	9.2	0.0	12.2	24.9	25.3	1.29	Fine
12	30.4	22.0	18	18	54	63	0.0	10.6	0.0	12.1	23.0	23.4	1.25	Fine
13	30.8	22.2	16	17	49	62	0.0	11.8	0.0	12.3	26.3	26.5	1.33	Fine
14	29.1	22.1	18	20	56	71	1.0	10.2	0.0	11.1	24.5	24.5	1.38	Fine, O/N Shwr
15	30.4	21.3	18	19	60	72	1.5	10.8	4.8	12.1	25.8	26.0	1.38	Fine, O/N Shwr
16	30.1	22.8	20	20	63	75	0.0	8.6	6.4	12.1	24.9	23.8	1.25	Fine
17	30.9	22.7	20	19	59	74	0.0	11.6	5.0	11.4	21.8	21.9	1.12	Fine
18	30.2	23.9	20	20	61	72	0.0	10.2	3.7	11.7	23.5	23.6	1.22	Fine
19	30.7	23.9	20	21	59	78	0.0	11.0	5.4	12.2	24.5	24.6	1.28	Fine
20	30.3	23.6	20	20	62	70	0.5	9.8	6.6	11.2	25.7	26.0	1.32	Fine
21	29.8	23.3	21	21	65	73	0.0	10.0	3.0	10.8	24.5	24.5	1.28	Fine
22	30.9	22.5	21	22	62	76	0.0	11.0	4.2	7.1	22.2	22.3	1.18	Fine
23	30.1	20.6	22	22	66	73	20.5	4.8	7.4	10.5	21.3	21.4	1.20	Fine, O/N Shwr
24	30.9	23.2	24	22	85	74	0.0	7.6	8.3	11.6	24.0	24.1	1.33	Fine
25	30.0	24.0	21	20	62	79	3.0	14.6	7.6	11.4	25.1	25.1	1.35	Fine, O/N Shwr
26	30.5	23.4	18	18	64	62	0.0	10.6	4.5	12.3	25.2	25.3	1.30	Fine
27	31.0	23.4	21	21	68	73	0.0	12.0	10.0	11.9	24.6	24.5	1.25	Fine
28	30.9	24.9	23	21	92	75	0.0	5.6	11.4	4.2	15.9	16.6	0.75	Cloud
29	31.5	22.7	22	21	78	72	0.0	6.0	10.6	4.5	15.7	16.3	0.80	Cloud
30	32.2	24.2	21	20	71	80	13.0	5.2	6.1	2.4	13.5	13.9	0.68	Cloud, Rain

	Temperature C°		Humidity		Rain	Evap.	Radiation						
	Max	Min	Dew Point	am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R	
Avg.	30.6	23.1	20.0	20.5	63.9	74.6		9.5	6.5	10.6	23.5	23.7	1.21
Total							41.0	286.0	193.7	316.8	704.7	710.8	36.18

16,857 17,003 Total Langleys
562 567 Average Langleys

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

Wet Time hours: Duration each day exposed surfaces are wet.
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December 2017 Daily Weather Record

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap.	Wet	Sun	Global Radiation (MJ/m ²)			Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	UV-R	
1	30.3	24.8	22	23	69	79	4.0	6.4	4.3	11.3	25.0	23.6	1.24	Fine, O/N Shw
2	31.1	25.2	22	24	63	81	0.0	8.6	8.2	10.4	25.3	24.1	1.30	Fine
3	32.0	23.5	22	25	62	82	0.0	6.4	5.6	11.4	24.6	23.3	1.26	Fine
4	31.3	23.9	24	24	71	81	5.5	8.2	7.9	11.0	25.4	24.1	1.31	Fine, O/N Shw
5	34.7	22.7	24	25	68	81	0.0	7.6	7.1	9.6	19.2	18.4	0.89	Fine, Lt Cloud
6	33.2	23.9	24	21	66	69	0.0	7.8	3.9	8.5	24.5	23.7	1.23	Fine
7	33.1	26.6	21	21	63	72	0.0	9.8	0.0	10.2	26.3	25.0	1.32	Fine
8	32.6	26.3	20	23	58	73	0.0	9.0	0.0	11.6	23.9	22.6	1.23	Fine
9	31.9	25.2	21	24	57	78	0.0	8.8	7.4	6.6	19.3	18.7	0.87	Fine, Lt Cloud
10	32.9	22.4	23	24	73	77	0.0	8.4	8.1	11.6	25.9	24.5	1.28	Fine
11	32.6	23.9	24	23	64	72	0.0	7.4	10.3	10.3	19.4	18.5	0.88	Fine
12	31.3	20.7	24	24	66	76	6.5	9.0	3.7	10.9	24.5	23.3	1.18	Fine, O/N Rain
13	32.0	23.1	24	23	67	74	0.0	10.6	8.6	11.3	24.8	23.4	1.25	Fine
14	31.8	23.0	23	20	68	66	0.0	12.0	4.1	11.1	25.0	23.5	1.25	Fine
15	31.8	23.2	20	21	59	71	0.0	11.0	5.4	11.4	24.3	23.3	1.28	Fine
16	33.2	24.6	19	21	55	66	0.5	10.8	4.9	11.5	20.3	19.1	0.97	Fine
17	32.7	25.2	19	22	54	73	0.5	11.4	7.0	11.3	22.0	20.7	1.09	Fine
18	32.2	22.3	21	23	62	75	0.0	9.6	5.8	10.9	24.1	22.6	1.28	Fine
19	32.2	24.0	22	25	63	88	0.0	10.2	9.1	6.0	19.2	18.6	0.87	Fine, Lt Cloud
20	32.6	23.0	22	22	78	63	0.0	7.4	8.7	7.5	20.0	19.2	1.03	Fine, Lt Cloud
21	32.0	26.4	20	23	57	85	0.0	9.4	8.5	11.1	25.4	24.0	1.31	Fine
22	32.2	23.9	19	21	54	77	2.5	9.2	5.6	9.1	23.7	22.5	1.22	Fine, Shower
23	32.3	24.5	23	24	94	83	0.5	9.6	9.6	9.3	22.1	20.9	1.13	Fine
24	32.7	24.7	23	24	67	82	0.0	5.8	10.2	11.8	22.1	20.8	1.10	Fine
25	32.5	24.8	24	20	78	66	0.0	10.4	7.4	9.7	25.5	24.4	1.38	Fine
26	32.4	23.4	20	23	61	77	0.0	9.4	7.7	10.8	25.2	23.7	1.37	Fine
27	32.8	23.2	20	20	57	68	0.0	10.4	4.5	11.9	22.5	21.2	1.15	Fine
28	32.6	26.9	18	21	53	71	0.0	10.4	2.1	11.3	25.8	24.3	1.35	Fine
29	33.2	26.0	20	20	61	68	0.0	9.6	6.2	11.3	26.4	25.0	1.40	Fine
30	33.6	25.8	20	24	57	79	2.5	8.8	8.6	10.3	26.8	25.5	1.38	Fine, O/N Shw
31	33.3	26.7	25	25	74	82	0.0	9.6	8.9	11.2	25.9	24.4	1.29	Fine

Avg.	Temperature C°		Humidity		Rain	Evap.	Radiation			UV-R			
	Max	Min	Dew	Point	mm	mm	Wet Hrs	Sun Hrs	Horiz		19° N		
	32.4	24.3	21.7	22.7	64.5	75.3	9.1	6.4	10.4	23.7	22.5	1.20	
Total							22.5	283.0	199.4	322.2	734.4	696.9	37.09
										17,567	16,670	Total Langleys	
										567	538	Average Langleys	

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer
 For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

Sunshine hours calculated as total time direct solar irradiance exceeds 120 W/m² (International Meteorological Organisation)

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