



Allunga Exposure Laboratory

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2018 Overview: Daily Weather Record

	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)		UV-R
	Ambient		9am	9pm	9am	9pm	mm	mm	Time	Shine	Horiz	19°N	Horiz
	Max	Min							Hours	Hours			
January	32.8	24.6	21.0	21.5	65	76	141.0	249.4	242.1	287.1	713.9	696.9	37.85
February	32.2	23.8	23.8	21.5	72	66	294.5	229.0	248.4	237.0	608.3	604.9	35.04
March	30.7	23.7	22.4	20.7	71	68	350.0	215.6	264.6	240.0	579.4	598.5	33.77
April	31.1	23.3	21.7	22.2	70	80	16.0	179.0	225.9	241.7	526.9	585.7	24.31
May	28.4	19.3	17.4	18.7	68	79	18.2	148.2	223.4	239.4	492.1	572.5	23.52
June	26.2	15.7	12.6	14.2	62	72	7.0	159.0	219.2	261.0	486.9	561.8	21.07
July	26.3	15.4	14.4	18.6	68	75	31.5	155.9	205.6	238.9	478.5	576.3	25.90
August	27.0	14.8	11.5	15.1	61	70	0.0	211.4	134.7	271.9	578.8	656.3	30.95
September	29.0	17.3	12.9	15.6	60	71	37.0	215.8	158.3	270.4	608.5	678.3	34.30
October	30.7	22.5	17.7	19.5	65	73	45.5	252.4	231.5	289.5	668.3	668.4	35.46
November	34.3	24.4	18.0	19.5	60	68	41.1	312.6	133.1	290.2	710.7	694.7	37.26
December	33.3	25.0	19.5	20.6	69	73	274.0	251.8	200.5	245.7	649.6	644.6	35.58

	Temperature C°		Dew Point		Humidity		Rain	Evap.	Wet Hrs	Sun Hrs	Radiation		
	Max	Min			am	pm	mm	mm			Horiz	19° N	UV-R
Average	30.2	20.8	17.7	19.0	65.9	72.6	104.7	215.0	207.3	259.4	591.8	628.2	31.3
Total							1255.8	2580.1	2487.3	3112.8	7101.7	7539.0	375.01

169,872 **180,332** **Total Langley's**
15,028 **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 2018 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					Horiz	19°N	UV-R			
1	34.0	27.6	21	22	3.5	11.4	8.1	10.7	28.9	27.1	1.64	Fine, O/N Shower		
2	33.0	27.1	22	24	9.3	8.6	8.0	10.1	6.0	18.3	17.3	0.98	Fine, Cloud, Rain	
3	36.9	23.5	21	21	55	60	10.5	6.8	8.5	11.2	26.5	24.5	1.50	Fine, O/N Shower
4	33.6	27.1	23	23	74	89	0.0	6.8	4.7	8.5	21.7	20.3	1.21	Fine, Lt Cloud
5	30.3	23.0	21	25	69	96	33.0	7.4	14.5	5.1	5.6	5.3	0.30	Fine, Cld, O/N Shwr
6	34.8	23.1	22	20	77	78	15.5	2.8	9.0	10.5	26.6	25.0	1.48	Rain, Fine
7	33.5	24.7	19	22	50	68	0.0	10.0	6.3	11.4	29.9	28.1	1.71	Fine, O/N Shower
8	34.2	23.8	21	21	65	79	4.5	10.2	9.6	10.7	26.9	24.9	1.52	Fine
9	35.7	25.2	20	22	56	78	0.0	7.8	4.2	11.1	29.5	27.4	1.66	Fine
10	34.0	24.6	21	22	56	76	0.0	10.0	4.9	11.3	30.0	28.2	1.71	Fine, O/N Shower
11	34.1	23.7	22	21	65	74	13.0	10.2	10.9	11.5	29.6	27.5	1.66	Fine
12	31.7	25.0	22	20	60	68	0.0	9.2	5.2	11.1	27.6	26.0	1.60	Fine
13	31.5	25.8	21	20	63	68	0.0	8.4	8.9	11.1	25.9	23.8	1.44	Fine
14	33.5	24.4	22	20	67	59	0.0	8.8	6.4	11.9	27.9	26.3	1.59	Fine
15	33.3	26.3	22	23	74	85	0.0	7.4	7.6	8.8	22.6	21.3	1.26	Fine, Lt Cloud
16	29.5	22.1	22	19	76	73	2.5	6.6	8.7	4.2	16.1	15.1	0.85	Fine, Cloud, Shower
17	32.0	25.4	20	23	57	81	0.0	8.0	4.8	5.5	15.7	14.9	0.83	Fine, Cld, O/N Shwr
18	32.4	23.9	20	22	62	64	2.0	9.4	6.2	9.4	26.4	24.8	1.49	Fine
19	31.4	21.3	18	18	52	68	0.0	10.6	5.1	9.5	25.7	24.4	1.45	Fine
20	31.7	22.6	19	18	52	58	0.0	10.2	6.6	10.6	28.9	26.9	1.66	Fine
21	31.3	24.8	21	19	59	65	0.0	7.6	5.7	7.1	19.7	18.6	1.09	Fine, Lt Cloud
22	31.9	25.7	21	21	64	73	0.0	8.0	8.5	6.7	20.4	19.3	1.15	Fine, Lt Cloud
23	33.0	24.5	21	22	64	88	0.0	8.4	5.9	8.6	22.1	20.5	1.24	Fine, Lt Cloud
24	30.4	23.9	21	23	67	86	5.0	8.2	12.4	5.9	14.9	14.0	0.77	Fine, Cloud Rain
25	30.5	25.4	22	24	72	97	6.5	3.6	10.3	5.0	15.7	14.7	0.85	Fine, Cloud, Rain
26	31.8	24.6	22	21	74	78	32.0	4.4	13.1	8.5	21.4	20.3	1.18	Fine, Cloud, Rain
27	32.5	24.4	21	20	60	71	1.0	7.4	6.3	11.2	27.8	26.2	1.57	Fine
28	32.8	24.2	20	23	59	84	0.0	8.6	5.5	10.8	26.2	24.5	1.49	Fine, O/N Shower
29	33.7	25.1	21	22	66	80	1.5	7.2	7.9	11.0	28.9	26.9	1.63	Fine, O/N Shower
30	34.2	23.4	22	22	72	78	1.5	8.4	9.2	10.9	27.8	26.2	1.58	Fine, O/N Shower
31	33.6	26.2	20	24	57	81	1.0	6.8	7.0	11.3	28.4	26.6	1.61	Fine

	Temperature C°		Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation			
	Max	Min	Dew	Point					am	pm	Horiz	19° N
Avg.	32.8	24.6	21.0	21.5	64.5	75.8	8.0	7.8	9.3	24.0	22.5	1.35
Total					141.0	249.4	242.1	287.1	743.6	696.9	41.70	

17,787 16,670 Total Langley's
574 538 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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February 2018 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	Dew Point	9am	9pm					Horiz	19°N	UV-R			
	Max	Min	9am	9pm	9am	9pm	Horiz	19°N	UV-R					
1	34.7	25.4	24	22	63	60	0.0	9.2	4.6	11.2	29.7	28.2	1.62	Fine
2	32.9	25.9	23	23	65	58	0.0	10.6	6.5	10.4	28.3	27.1	1.55	Fine, O/N Shower
3	33.5	26.7	23	24	62	61	4.5	11.2	7.7	11.1	29.5	28.0	1.61	Fine
4	30.2	24.1	23	22	83	70	8.5	7.0	9.1	7.6	15.4	14.8	0.88	Fine, Cloud, Rain
5	29.0	23.3	24	22	82	68	11.0	5.2	10.2	5.0	8.5	8.1	0.46	Fine, Cloud, Rain
6	31.7	24.6	22	21	58	66	1.0	8.4	7.0	8.5	23.9	22.9	1.31	Fine
7	31.6	24.1	24	21	56	60	0.0	7.4	5.5	9.7	26.5	25.5	1.45	Fine
8	31.9	22.8	23	22	61	63	0.0	10.2	6.2	10.1	25.9	24.8	1.42	Fine, O/N Shower
9	31.7	22.6	24	22	59	66	3.5	10.6	8.6	10.6	26.1	24.7	1.41	Fine
10	31.4	22.4	24	21	62	55	0.0	9.8	3.8	9.9	27.9	26.7	1.52	Fine
11	32.2	19.0	24	17	59	62	0.0	10.8	4.4	10.3	29.2	27.7	1.59	Fine
12	32.7	19.1	22	18	57	54	0.0	11.2	0.0	11.0	29.1	27.4	1.60	Fine
13	35.1	22.8	22	19	65	60	0.0	10.6	5.7	10.5	29.0	27.6	1.57	Fine
14	35.1	25.0	24	23	72	56	0.0	9.8	6.5	10.8	28.9	27.5	1.59	Fine
15	34.7	26.7	25	23	69	61	0.0	10.0	5.9	11.2	27.7	26.5	1.49	Fine
16	35.7	27.0	24	22	57	56	0.0	8.4	6.7	9.8	25.3	24.2	1.37	Fine
17	34.5	24.6	24	21	71	61	0.5	7.0	9.4	9.6	24.3	23.1	1.31	Fine
18	34.8	26.4	25	21	53	58	0.0	10.4	6.3	11.3	28.3	27.2	1.59	Fine
19	34.8	26.5	24	20	71	52	0.0	10.0	8.4	10.4	27.8	26.5	1.57	Fine
20	32.2	21.1	23	20	99	63	11.5	7.6	12.2	7.4	20.3	19.3	1.09	Fine, Cloud, Rain
21	30.0	20.8	24	20	78	68	43.0	6.6	15.4	6.3	19.8	18.8	1.05	Fine, Cloud, Rain
22	30.3	24.1	25	23	73	69	11.0	7.2	11.2	6.8	19.9	19.0	1.08	Fine, Cloud, Rain
23	28.5	22.7	24	22	91	79	21.5	7.0	13.6	3.4	8.3	8.0	0.45	Cloud, Rain
24	28.2	22.4	24	22	91	93	27.0	4.6	16.5	2.5	6.4	6.3	0.36	Cloud, Rain
25	31.7	23.5	25	23	80	89	44.5	5.2	13.6	6.8	17.9	17.0	0.99	Fine, Cloud, Rain
26	31.5	24.0	24	23	86	70	8.5	7.2	10.2	7.5	22.6	21.5	1.22	Fine, Rain
27	32.3	25.0	25	23	80	71	12.0	3.8	11.7	7.3	24.2	23.3	1.34	Fine, Rain
28	29.2	23.7	24	23	99	86	86.5	2.0	21.5	0.0	3.2	3.2	0.18	Overcast, 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.	32.2	23.8	23.8	21.5	71.5	65.5		8.2	8.9	8.5	22.6	21.6	1.2
Total							294.5	229.0	248.4	237.0	633.6	604.9	34.67

15,155 14,469 Total Langleys
523 499 Avge 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
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March 2018 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	28.7	23.4	24	23	96	79	140.5	3.0	17.5	3.8	6.7	6.6	0.36	Cloud, Rain
2	30.8	21.9	22	22	82	78	19.5	4.4	12.1	6.2	17.9	17.5	0.97	Fine, Cloud, Rain
3	30.8	26.4	23	22	78	76	0.0	6.2	9.1	7.9	20.5	20.2	1.11	Fine, Lt Cloud
4	30.5	24.9	23	21	67	70	0.0	7.8	4.6	9.6	24.7	24.3	1.33	Fine
5	31.8	25.3	22	22	69	75	0.0	8.0	5.7	9.7	26.3	25.8	1.42	Fine
6	31.5	25.5	22	21	65	52	0.5	10.4	7.3	10.4	26.8	26.3	1.45	Fine
7	32.1	24.9	23	22	77	65	1.5	7.8	5.4	9.5	21.2	20.8	1.14	Fine, Cloud, Rain
8	28.6	24.4	22	22	91	74	8.5	2.6	12.5	2.4	6.4	6.3	0.35	Rian/O/N Storm
9	30.1	23.0	23	22	69	53	19.5	5.8	11.3	6.6	18.5	18.2	1.00	Fine, Rain
10	31.2	23.4	24	21	61	54	0.0	8.8	7.4	9.1	22.8	22.4	1.23	Fine, Lt Cloud
11	31.0	23.9	24	20	60	60	1.0	7.6	8.6	7.3	18.7	18.4	1.01	Fine, Lt Cloud
12	31.0	20.6	23	18	53	57	0.0	9.2	5.2	10.3	24.4	24.1	1.32	Fine
13	31.8	20.4	22	18	54	55	0.0	10.2	7.7	10.5	24.8	24.6	1.34	Fine
14	31.5	21.7	21	17	61	56	0.0	10.6	3.1	11.0	26.1	25.8	1.41	Fine
15	31.1	21.9	20	18	60	54	0.0	9.8	3.8	10.8	26.1	25.8	1.41	Fine
16	31.1	22.1	23	20	66	76	0.0	10.0	8.0	10.6	25.8	25.5	1.39	Fine
17	31.6	23.7	22	21	60	79	0.0	9.6	6.8	11.1	25.8	25.5	1.39	Fine
18	31.8	24.9	23	22	70	74	0.0	10.0	7.5	9.8	23.8	23.6	1.29	Fine
19	32.4	24.1	24	21	62	58	0.0	9.6	4.6	10.1	24.7	24.5	1.33	Fine, O/N Rain
20	31.6	24.5	23	23	74	85	16.5	10.4	11.2	10.4	25.3	25.2	1.37	Fine, Rain
21	30.6	25.0	22	22	71	69	1.5	7.8	8.7	7.7	18.0	17.9	0.97	Fine, Cloud, Shower
22	30.6	22.9	23	21	63	61	9.5	8.0	10.6	7.9	19.9	19.8	1.07	Fine, Cloud, Shower
23	28.4	24.4	20	19	69	69	7.0	2.0	9.4	3.1	8.5	8.5	0.46	Cloud, Rain
24	29.1	24.0	21	20	77	77	5.5	3.4	10.3	4.0	12.5	12.5	0.68	Cloud, Rain
25	29.0	23.3	23	22	83	76	20.0	2.0	12.6	4.2	12.0	12.1	0.65	Cloud, Rain
26	25.4	24.5	22	23	93	93	8.0	1.2	12.0	0.0	2.5	2.5	0.14	Rain and Storms
27	28.9	23.1	24	22	93	79	86.5	3.2	14.7	4.7	14.4	14.5	0.78	Fine, Cloud, Rain
28	30.7	24.1	22	20	74	72	4.5	4.6	9.4	3.9	14.3	14.5	0.77	Fine, Cloud, Rain
29	31.4	22.6	21	19	69	58	0.0	9.6	4.8	10.5	24.4	24.6	1.32	Fine
30	33.6	23.1	22	18	69	55	0.0	5.4	6.9	10.4	24.3	24.6	1.31	Fine
31	32.7	25.5	22	19	63	59	0.0	6.6	5.8	6.5	15.4	15.6	0.83	Fine, Cloud

	Temperature C°				Humidity		Rain	Evap.	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew Point		am	pm	mm	mm			Horiz	19° N	UV-R
Avg	30.7	23.7	22.4	20.7	70.9	67.7		7.0	8.5	7.7	19.5	19.3	1.05
Total							350.0	215.6	264.6	240.0	603.5	598.5	32.59

14,436 14,316 Total Langleys
466 462 Average Langleys

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April 2018 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks		
	Max	Min	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	Horiz UV-R			
1	32.0	26.0	24	23	68	92	0.0	8.2	7.2	6.1	17.1	17.4	0.92	Fine, Cloud
2	30.3	25.6	22	23	73	88	1.5	5.8	8.3	5.3	14.0	14.1	0.77	Fine, Cloud, Shower
3	30.9	24.9	23	20	61	70	7.5	4.6	11.4	3.8	11.4	11.5	0.63	Cloud, Rain
4	29.4	25.6	23	20	58	65	2.5	5.2	7.4	4.3	14.6	14.8	0.81	Fine, Cloud, Shower
5	29.2	23.9	22	19	59	53	0.0	7.0	5.7	5.4	15.0	15.2	0.84	Fine, Cloud
6	30.7	21.8	20	21	67	73	0.0	7.8	2.5	6.2	17.5	18.8	0.80	Fine, Lt Cloud
7	31.2	22.6	19	21	66	80	0.0	6.4	6.3	6.8	21.3	22.0	0.77	Fine
8	31.5	22.7	20	21	72	73	0.5	7.6	7.3	7.8	20.8	21.9	0.88	Fine, Shower
9	31.2	21.8	20	21	67	77	0.0	6.6	8.8	10.9	23.3	25.1	0.95	Fine
10	30.8	21.2	20	21	66	79	0.0	8.0	6.0	9.9	24.8	26.5	0.95	Fine
11	30.9	20.7	21	21	70	78	0.0	7.4	9.4	10.9	24.0	25.9	0.93	Fine
12	31.3	21.5	22	24	69	89	0.5	5.2	8.2	11.0	18.8	20.3	0.94	Fine, Lt Cloud
13	29.4	24.3	25	25	89	95	1.5	5.8	10.2	7.5	17.4	18.6	0.79	Fine, Lt Cld, Shwr
14	32.2	25.1	24	24	85	92	2.0	1.6	9.4	10.6	17.6	19.0	0.84	Fine, Lt Cld, Shwr
15	33.4	25.0	23	24	70	87	0.0	6.6	7.5	8.9	20.4	21.9	0.85	Fine
16	31.6	24.3	24	23	76	82	0.0	7.0	8.1	10.8	21.4	23.4	0.82	Fine
17	31.1	21.8	23	22	75	79	0.0	5.2	7.8	10.2	17.9	19.4	0.87	Fine, Lt Cloud
18	30.7	23.4	22	23	68	81	0.0	7.0	6.9	4.8	13.9	14.5	0.54	Fine, Cloud
19	32.5	23.1	22	22	68	79	0.0	4.8	7.3	10.4	19.6	21.5	0.70	Fine
20	31.9	22.6	21	21	67	83	0.0	7.4	7.5	9.2	20.7	22.2	0.82	Fine
21	31.0	23.4	21	22	66	77	0.0	7.4	6.3	5.9	14.4	15.1	0.60	Fine, Cloud
22	32.3	25.1	23	24	72	85	0.0	5.6	8.6	7.2	17.3	18.4	0.65	Fine, Lt Cloud
23	31.6	21.7	20	23	65	85	0.0	6.2	8.1	7.7	19.2	20.6	0.76	Fine, Lt Cloud
24	31.4	23.2	19	22	66	80	0.0	5.8	5.3	7.3	15.0	16.0	0.65	Fine, Lt Cloud
25	31.7	22.6	24	24	78	84	0.0	3.4	7.0	5.4	11.1	12.0	0.53	Fine, Cloud
26	28.8	22.5	19	23	76	84	0.0	5.4	8.6	8.0	19.3	21.0	0.79	Fine
27	31.4	24.0	23	23	82	78	0.0	2.8	7.7	8.3	18.5	19.7	0.71	Fine
28	30.8	24.9	22	21	77	78	0.0	4.2	6.8	9.8	20.7	22.1	0.82	Fine
29	29.6	22.3	21	21	70	79	0.0	5.6	6.0	11.1	22.0	24.7	0.85	Fine
30	31.1	21.9	20	23	67	86	0.0	7.4	8.3	10.2	19.9	22.1	0.70	Fine

	Temperature C°				Humidity		Rain	Evap.	Radiation				
	Max	Min	Dew Point	Point	am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R
Avg.	31.1	23.3	21.7	22.2	70.4	80.4	0.5	6.0	7.5	8.1	18.3	19.5	0.78
Total							16.0	179.0	225.9	241.7	548.9	585.7	23.48

13,130 14,010 Total Langley's
438 467 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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May 2018 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m ²)			Remarks		
	Max	Min	9am	9pm	mm	mm	Time Hours	Shine Hours	Horiz	19°N	UV-R			
1	32.5	22.4	22	23	70	85	0.0	5.0	10.2	8.1	20.3	22.1	0.71	Fine
2	30.2	23.8	22	22	78	87	0.0	4.8	9.5	4.8	15.1	16.4	0.62	Fine, Cloud
3	29.6	23.5	22	21	84	75	0.0	4.2	8.4	6.2	16.9	18.1	0.71	Fine, Lt Cloud
4	29.9	24.1	22	23	69	98	1.5	5.2	9.4	3.2	10.2	10.6	0.45	Cloud, Shower
5	28.6	20.0	20	21	80	86	4.0	5.2	8.5	10.2	19.5	21.9	0.77	O/N Rain, Fine
6	29.5	19.4	18	20	67	81	0.0	2.0	6.9	9.4	17.5	19.5	0.74	Fine, Lt Cloud
7	29.3	19.1	16	21	57	82	0.0	4.0	7.3	6.6	13.7	14.8	0.56	Fine, Cloud
8	28.4	22.2	21	22	81	84	0.0	4.8	9.1	2.2	9.1	9.3	0.54	Cloud
9	28.1	20.5	18	15	75	65	0.0	4.4	9.0	9.4	18.4	20.6	0.69	Fine, Lt Cloud
10	27.9	17.3	14	18	57	77	0.0	5.0	6.8	11.1	21.7	24.8	0.82	Fine
11	28.9	17.6	16	19	60	72	0.0	8.0	5.9	10.6	19.2	21.8	0.69	Fine
12	28.1	20.1	20	20	70	76	0.0	5.8	6.4	3.8	11.7	12.2	0.48	Fine, cloud
13	28.7	19.4	19	19	65	75	0.0	4.4	6.8	8.0	17.6	19.5	0.66	Fine, Lt Cloud
14	26.4	21.9	21	22	94	96	0.0	5.2	8.5	1.5	6.8	6.9	0.40	Overcast
15	26.6	21.6	20	22	83	95	5.5	5.8	11.2	1.9	8.7	8.9	0.40	Overcast, Rain
16	29.1	20.2	20	22	74	89	1.5	4.6	9.2	10.7	19.5	22.4	0.73	Fine
17	29.0	21.3	20	22	74	87	2.5	4.6	10.3	7.2	12.7	13.9	0.58	Fine, Rain
18	28.2	21.8	21	22	82	91	1.5	3.6	8.8	8.7	15.5	17.4	0.62	Fine, Rain
19	29.4	19.7	14	18	53	83	0.2	4.6	9.1	11.1	20.6	23.9	0.75	Fine
20	27.7	15.6	11	15	46	74	0.0	5.4	4.9	11.1	21.1	24.5	0.79	Fine
21	28.5	20.2	14	14	62	63	0.0	4.8	7.1	11.1	21.7	25.2	0.78	Fine
22	27.2	15.4	15	14	68	67	0.0	4.6	0.0	10.9	20.0	23.3	0.78	Fine
23	27.0	15.7	11	16	54	78	0.0	6.0	3.2	11.1	20.6	24.0	0.76	Fine
24	28.3	15.5	16	18	65	89	0.0	5.6	6.4	10.9	20.2	23.5	0.78	Fine
25	27.8	15.2	17	14	73	74	0.0	3.8	5.5	10.5	20.1	23.3	0.78	Fine
26	26.4	16.0	12	10	56	58	0.0	4.4	0.0	6.4	17.1	18.7	0.66	Fine, Lt Cloud
27	27.2	15.7	12	17	53	71	0.0	4.8	7.7	7.5	19.5	21.6	0.72	Fine
28	28.3	16.9	14	15	57	64	0.0	5.2	4.6	8.3	14.1	15.9	0.69	Fine, Lt Cloud
29	27.6	17.6	15	19	63	78	1.5	4.0	8.9	5.6	17.6	19.1	0.63	Fine, Rain
30	27.9	19.8	17	18	68	73	0.0	4.0	6.7	5.1	11.6	12.4	0.47	Fine, Cloud
31	28.4	19.5	20	19	75	75	0.0	4.4	7.1	6.2	14.3	16.0	0.57	Fine, Lt Cloud

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew Point	am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R
Avg	28.4	19.3	17.4	68.2	79.0		4.8	7.2	7.7	16.5	18.5	0.66
Total						18.2	148.2	223.4	239.4	512.6	572.5	20.33

12,261 396 **13,694 442** **Total Langleys**
Avg 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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June 2018 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					Horiz	19°N	UV-R			
1	25.1	14.7	0	2	28	37	0.0	6.2	0.0	10.7	20.0	23.4	0.85	Fine
2	24.4	11.2	0	0	29	32	0.0	7.0	0.0	10.6	21.9	25.6	0.83	Fine
3	25.5	12.8	2	5	34	42	0.0	8.0	0.0	10.9	18.0	21.1	0.78	Fine
4	24.6	12.7	8	10	49	63	0.0	7.0	0.0	10.8	19.8	23.2	0.84	Fine
5	25.9	15.8	16	18	84	76	0.0	5.0	2.6	6.3	10.3	10.4	0.49	Fine, Cloud
6	27.7	19.1	18	20	74	78	0.0	2.8	0.2	5.2	7.9	8.5	0.44	Fine, Cloud
7	26.4	19.5	21	21	85	95	0.0	3.0	9.4	4.5	9.4	9.5	0.51	Fine, Cloud
8	26.0	20.2	22	21	91	93	0.0	1.8	20.3	7.4	22.9	24.5	0.88	Fine, O/N Shower
9	28.7	19.4	19	20	85	87	2.5	4.4	12.4	5.3	11.4	12.1	0.62	Fine, Cloud
10	25.2	15.3	8	14	46	77	0.0	7.0	15.4	10.7	19.6	23.0	0.79	Fine
11	24.8	11.9	14	16	68	81	0.0	6.6	13.1	10.3	17.4	20.4	0.8	Fine, Lt Cloud
12	25.9	14.3	16	18	70	86	0.0	4.0	12.6	10.2	17.0	19.9	0.78	Fine, Cloud
13	27.6	18.8	20	20	76	91	0.0	4.0	13.5	10.2	17.8	20.9	0.78	Fine, Cloud
14	28.2	18.5	21	21	82	90	0.0	4.6	14.0	10.2	16.8	19.6	0.8	Fine, Cloud
15	26.8	20.1	22	23	81	97	0.0	4.2	13.9	3.3	9.2	9.2	0.44	Fog, Cloud
16	28.7	21.6	24	23	94	94	0.0	0.8	18.3	3.7	17.6	18.5	0.73	Fine, Lt Cloud
17	27.5	22.4	23	10	85	45	0.0	2.4	15.3	9.0	15.5	17.8	0.79	Fine, Lt Cloud
18	25.4	18.2	7	11	54	58	0.0	10.0	0.0	10.4	18.6	21.9	0.82	Fine, Lt Cloud
19	24.3	14.9	5	9	50	56	0.0	8.0	0.0	10.5	19.1	22.5	0.83	Fine
20	25.9	11.4	5	11	37	55	0.0	6.8	0.0	10.7	18.5	21.8	0.81	Fine
21	26.7	12.2	9	16	50	79	0.0	5.8	0.0	8.8	13.8	15.9	0.71	Fine, Cloud
22	27.0	14.3	12	15	56	77	0.0	4.6	9.0	10.4	18.4	21.6	0.82	Fine
23	26.2	12.5	6	12	48	63	0.0	5.4	7.9	10.6	20.8	24.7	0.9	Fine
24	26.5	14.8	13	15	61	67	0.0	4.8	6.3	4.8	7.2	7.7	0.41	Fine, Cloud
25	26.8	16.9	14	18	62	81	0.0	5.2	0.6	8.8	14.7	16.9	0.76	Fine, Lt Cloud
26	27.6	19.1	16	18	66	82	0.0	4.6	6.7	4.0	13.2	14.0	0.62	Fine, Lt Cloud
27	26.6	14.4	11	13	51	69	1.5	4.6	10.9	10.5	18.2	21.5	0.79	Fine, O/N Shower
28	27.3	12.5	12	9	60	62	0.5	6.6	10.2	10.6	18.4	21.6	0.83	Fine, O/N Shower
29	24.3	10.5	6	8	48	56	2.5	6.4	5.1	10.8	18.9	22.3	0.84	Fine, O/N Shower
30	23.1	10.7	7	9	54	89	0.0	7.4	1.5	10.8	18.5	21.8	0.77	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.	26.2	15.7	12.6	14.2	61.9	71.9		5.3	7.3	8.7	16.4	18.7	0.74
Total							7.0	159.0	219.2	261.0	490.8	561.8	22.06

11,740 13,438 Total Langleys
391 448 Ave 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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July 2018 Daily Weather Record: Townsville

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 Hours	Shine Hours	Horiz	19°N	UV-R	
1	27.1	21.3	18	19	82	79	0.5	4.0	8.2	6.5	15.6	17.4	0.7	Fine, Cloud
2	25.5	20.2	22	21	95	86	12.5	3.6	12.7	5.5	10.7	10.9	0.46	Rain, Fine
3	27.0	16.6	19	21	68	78	0.5	6.2	7.4	6.7	16.9	18.8	0.76	Fine, Lt Cloud
4	26.2	16.2	18	17	66	81	0.5	6.8	8.0	7.6	17.6	19.7	0.81	Fine, Lt Cloud
5	25.3	15.4	18	16	59	76	0.0	6.4	5.3	8.0	17.7	19.5	0.77	Fine, Lt Cloud
6	26.7	15.1	16	20	77	66	0.0	4.4	4.6	4.1	13.7	14.0	0.6	Fine, Cloud
7	27.0	19.4	18	20	75	95	0.0	3.2	8.8	3.6	10.8	11.1	0.51	Fine, Cloud
8	27.2	19.9	16	18	59	66	0.0	3.8	5.7	8.0	17.5	19.2	0.92	Fine
9	24.1	14.9	15	20	53	69	0.0	6.8	5.4	8.2	17.5	19.1	0.88	Fine
10	24.8	13.2	12	14	48	52	0.0	4.6	4.5	7.8	17.2	18.9	0.85	Fine
11	26.3	12.4	11	16	57	77	0.0	4.6	5.1	7.7	17.5	19.2	0.82	Fine
12	25.1	15.5	13	18	71	73	0.0	4.6	6.0	8.1	17.7	19.5	0.9	Fine
13	25.8	12.6	12	19	73	65	0.0	4.4	5.4	8.4	17.7	19.6	0.92	Fine
14	24.9	12.2	11	16	64	73	0.0	4.6	6.6	8.5	17.8	19.5	0.91	Fine
15	24.2	11.1	10	18	56	60	0.0	6.0	5.8	8.3	17.9	19.7	0.95	Fine
16	25.6	12.1	11	16	69	81	0.0	5.0	5.1	7.8	17.8	19.7	0.93	Fine
17	25.6	11.5	11	18	74	72	0.0	3.4	6.3	8.0	18.0	20.1	0.95	Fine
18	26.1	15.1	13	19	72	86	0.0	4.0	7.2	8.1	17.9	19.8	0.81	Fine
19	26.0	14.3	13	20	62	73	0.0	5.8	6.7	7.9	18.1	20.2	0.83	Fine
20	27.3	16.4	14	21	70	74	0.0	4.0	5.5	8.3	16.1	17.7	0.79	Fine
21	29.4	17.5	16	18	54	66	0.0	6.6	3.0	8.4	18.2	19.9	0.81	Fine
22	25.7	14.2	12	18	73	87	0.0	5.6	6.2	8.0	18.2	20.3	0.85	Fine
23	26.2	15.9	13	18	71	85	0.0	4.6	7.4	7.5	16.6	18.2	0.79	Fine
24	26.3	17.3	15	19	73	82	0.0	4.4	6.3	8.2	18.3	20.4	0.96	Fine
25	27.0	14.4	14	18	64	73	0.0	5.4	5.4	7.0	18.4	20.3	0.95	Fine
26	26.7	14.8	15	20	72	74	0.0	4.8	6.6	8.1	18.3	20.2	0.88	Fine
27	26.2	16.1	14	19	72	72	17.5	4.2	10.9	3.7	9.4	9.5	0.41	Cloud, Rain
28	27.0	14.8	13	20	71	69	0.0	5.0	7.3	8.1	18.4	20.7	0.94	Fine
29	27.6	14.4	13	19	77	83	0.0	4.4	7.1	7.9	18.1	20.3	0.79	Fine
30	30.2	17.0	15	20	57	73	0.0	4.2	4.5	8.6	19.3	21.5	0.89	Fine
31	26.1	16.5	15	20	70	82	0.0	5.6	4.2	8.8	19.2	21.4	0.86	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew	Point	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R	
Avg.	26.3	15.4	14.4	18.6	67.9	75.0	4.9	6.4	7.5	16.9	18.6	0.81
Total					31.5	155.9	205.6	238.9	524.6	576.3	25.20	

12,549 13,785 Total Langley's
405 445 Avge 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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August 2018 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	26.4	11.7	8	12	62	66	0.0	5.4	3.5	9.5	19.1	20.7	0.92	Fine
2	26.3	15.0	11	13	65	69	0.0	6.2	5.1	9.7	19.3	20.8	0.93	Fine
3	26.3	14.9	11	15	64	81	0.0	7.6	6.4	9.4	18.9	20.5	0.91	Fine
4	26.9	18.0	14	17	75	83	0.0	7.4	7.0	9.4	19.0	20.5	0.92	Fine
5	26.6	16.4	13	16	69	74	0.0	7.0	4.7	7.5	18.8	20.1	0.89	Fine, Lt Cloud
6	27.6	16.3	14	15	70	74	0.0	8.2	5.2	8.3	19.3	20.5	0.92	Fine
7	28.3	19.4	16	18	56	77	0.0	5.2	2.4	3.5	10.1	10.3	0.41	Cloud, Fine
8	26.2	15.5	12	15	53	59	0.0	6.6	0.0	8.4	20.1	21.8	0.97	Fine
9	26.7	13.4	10	13	50	52	0.0	7.0	0.0	9.0	19.7	21.5	0.95	Fine
10	26.0	14.3	11	15	57	66	0.0	7.2	3.6	9.1	20.1	21.7	0.96	Fine
11	26.4	15.0	13	16	56	64	0.0	7.6	5.1	9.3	20.3	21.4	0.94	Fine
12	27.8	13.8	15	16	71	70	0.0	7.2	7.2	8.8	19.9	21.2	0.97	Fine
13	28.3	15.6	15	17	55	68	0.0	8.8	4.4	9.9	20.5	22.1	0.98	Fine
14	25.5	11.5	8	15	58	66	0.0	7.2	4.2	9.1	19.6	21.3	0.97	Fine
15	26.7	14.9	12	15	62	70	0.0	6.0	6.5	9.3	19.9	21.3	0.93	Fine
16	26.5	14.5	12	15	64	64	0.0	6.8	0.0	9.6	20.8	22.2	1.03	Fine
17	27.9	14.2	11	15	65	79	0.0	5.2	4.7	9.2	20.4	22.0	0.96	Fine
18	28.2	14.3	12	16	72	77	0.0	5.4	7.3	8.4	19.9	21.5	0.99	Fine
19	31.0	12.5	9	14	53	59	0.0	6.8	2.6	8.9	20.8	22.2	1.02	Fine
20	25.4	18.1	8	12	61	65	0.0	7.6	4.8	9.5	21.2	22.7	1.04	Fine
21	24.5	11.3	9	14	55	64	0.0	8.2	0.0	8.8	20.7	22.3	0.98	Fine
22	25.4	11.0	8	13	47	62	0.0	8.6	0.0	9.4	21.4	22.8	1.05	Fine
23	26.4	13.0	10	14	55	68	0.0	6.6	5.4	8.5	20.5	21.9	0.97	Fine
24	26.7	16.8	13	17	64	78	0.0	5.8	7.3	8.8	21.2	22.6	1.01	Fine
25	27.3	17.6	14	18	63	80	0.0	5.6	6.9	4.3	12.4	12.8	0.58	Cloud, Haze
26	28.0	16.8	14	17	66	81	0.0	4.4	7.6	8.7	21.2	22.7	1.05	Fine
27	29.1	15.5	9	14	47	63	0.0	6.6	0.0	9.5	21.9	23.2	1.04	Fine
28	26.1	12.7	9	14	66	77	0.0	7.8	4.0	9.3	21.5	22.8	1.06	Fine
29	26.2	13.4	10	15	58	72	0.0	6.8	5.1	8.6	20.2	21.5	0.98	Fine
30	27.4	13.9	11	15	63	74	0.0	7.0	6.6	10.0	22.1	23.6	1.06	Fine
31	27.6	18.3	14	17	62	78	0.0	7.6	7.1	10.2	22.3	23.8	1.09	Fine

Avg.	Temperature C°				Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew Point	9am	9pm	Horiz					19° N	UV-R	
	27.0	14.8	11.5	15.1	60.8	70.2	0.0	211.4	134.7	271.9	613.1	656.3	29.48

14,665 15,699 Total Langley's
473 506 Avge 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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September 2018 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		Horiz
1	29.8	17.9	13	17	62	70	0.0	5.8	5.3	9.6	20.6	21.6	1.05	Fine, Smoke Haze
2	33.0	16.7	12	15	55	63	0.0	7.4	4.1	9.7	21.6	22.7	1.12	Fine, Smoke Haze
3	31.4	14.2	9	14	45	61	0.0	8.0	3.5	9.5	21.5	22.4	1.1	Fine
4	28.8	14.2	10	12	68	68	0.0	7.2	4.2	8.8	20.3	21.4	1.04	Fine
5	27.7	16.0	12	16	59	73	0.0	6.8	5.6	9.3	21.3	22.3	1.11	Fine
6	28.5	20.2	15	18	60	77	0.0	8.0	4.7	8.2	21.5	22.5	1.09	Fine
7	27.8	20.3	15	17	59	69	0.0	7.4	0.0	8.5	22.6	23.5	1.15	Fine
8	28.9	18.1	15	16	66	70	0.0	6.8	4.4	8.4	21.7	22.4	1.1	Fine
9	33.9	17.3	15	16	54	77	0.0	7.2	3.9	9.3	22.4	23.3	1.13	Fine
10	28.9	19.4	14	17	61	76	0.0	7.0	6.8	9.7	22.5	23.2	1.15	Fine
11	28.0	15.0	12	16	56	69	0.0	6.6	4.1	9.3	22.1	23.0	1.12	Fine
12	27.6	19.3	15	17	70	72	3.0	7.6	7.6	10.1	20.7	21.6	1.04	Fine
13	27.5	19.4	16	18	63	81	0.0	8.2	8.0	9.5	22.6	23.4	1.16	Fine
14	28.3	15.6	12	16	55	72	0.0	8.4	5.2	8.8	22.8	23.2	1.12	Fine
15	27.9	15.9	12	15	62	70	0.0	8.0	4.9	9.3	22.9	23.2	1.09	Fine
16	30.6	14.9	11	16	64	77	0.0	7.8	6.4	8.7	23.0	23.2	1.15	Fine
17	28.6	14.1	10	15	53	74	0.0	7.4	5.3	9.0	22.9	23.1	1.16	Fine
18	27.5	20.0	18	17	90	75	14.5	4.2	12.5	5.1	12.4	12.4	0.55	Cloud, Rain
19	27.4	21.7	16	16	60	64	2.5	5.2	9.8	9.4	23.4	23.4	1.18	Shower, Fine
20	29.5	16.8	11	14	60	68	0.0	6.6	5.0	9.6	23.6	23.6	1.16	Fine
21	31.5	17.3	13	15	62	66	0.0	6.8	6.8	8.8	22.5	22.5	1.12	Fine, O/N Shower
22	28.4	16.7	13	16	68	81	7.0	7.4	9.1	9.4	21.9	21.8	1.06	Shower, Fine
23	28.3	15.6	10	14	57	70	0.0	7.4	6.7	8.9	22.8	22.8	1.09	Fine
24	28.6	15.8	10	13	51	62	0.0	7.0	0.0	8.8	23.7	23.6	1.16	Fine
25	28.9	17.7	14	16	57	75	3.5	6.6	7.1	8.5	23.9	23.8	1.2	Fine, O/N Shower
26	29.9	19.0	16	17	60	73	6.5	6.4	6.4	9.0	23.8	23.6	1.21	Fine, O/N Shower
27	28.4	17.2	11	14	56	69	0.0	8.8	2.8	9.2	24.0	23.7	1.19	Fine
28	28.1	16.8	13	15	60	69	0.0	9.0	4.1	9.5	24.1	23.8	1.15	Fine
29	28.3	16.9	11	14	63	69	0.0	7.2	5.1	9.3	24.1	23.7	1.14	Fine
30	28.1	19.9	13	16	55	77	0.0	7.6	3.6	9.2	24.0	23.6	1.18	Fine

	Temperature C°				Humidity		Rain	Evap.	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew Point	Point	am	pm	mm	mm			Horiz	19° N	UV-R
Avg.	29.0	17.3	12.9	15.6	60.4	71.2		7.2	5.4	9.0	22.2	22.6	1.11
Total							37.0	215.8	163.0	270.4	667.2	678.3	33.27

15,959 16,225 Total Langley's
532 541 Avge 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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October 2018 Daily Weather Record: Townsville

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 Hours	Shine Hours	Horiz	19°N	Horiz	
1	31.0	22.3	17	21	54	67	0.0	8.6	6.1	10.7	23.4	22.1	1.16	Fine
2	29.1	20.8	18	19	57	62	0.0	8.4	6.4	8.4	21.9	20.5	1.05	Lt Cloud, Fine
3	28.9	17.0	17	19	61	59	0.0	9.0	5.8	9.2	23.7	22.3	1.13	Fine
4	28.6	15.9	15	18	60	64	0.0	7.8	7.6	8.5	24.1	22.6	1.15	Fine
5	29.5	21.0	16	18	57	59	0.0	7.2	5.2	8.1	23.7	22.4	1.16	Fine
6	30.7	21.4	17	20	60	67	0.0	8.2	7.0	10.2	23.6	22.2	1.12	Fine
7	31.3	23.4	16	21	55	76	0.0	9.0	6.3	9.4	23.4	22.1	1.14	Fine
8	29.8	22.9	19	21	68	80	0.0	8.4	9.6	9.6	23.7	22.0	1.10	Fine
9	30.7	22.7	18	20	65	76	0.0	7.8	8.2	10.1	24.5	22.9	1.18	Fine
10	30.9	23.2	17	19	59	64	0.0	8.6	5.7	10.3	24.3	22.6	1.15	Fine
11	31.2	23.5	18	19	62	75	0.0	7.4	7.9	9.9	24.2	22.5	1.14	Fine
12	31.1	23.6	18	20	66	76	0.0	8.2	6.5	9.4	22.0	20.4	1.06	Fine
13	26.7	20.5	19	21	84	90	33.5	3.6	12.8	2.1	9.3	9.1	0.44	Cloud, T/Storm
14	29.1	22.6	18	20	75	86	2.5	5.0	10.5	7.8	22.7	21.1	1.09	Rain, Fine
15	30.3	25.0	19	21	75	85	0.0	7.6	7.5	8.8	23.1	21.3	1.11	Fine
16	31.1	22.9	17	20	63	66	0.0	5.8	6.4	8.0	22.7	20.8	1.05	Fine
17	31.6	24.6	18	21	69	76	0.0	8.2	5.8	9.7	24.4	22.2	1.15	Fine
18	29.8	22.0	20	19	90	80	8.5	6.4	10.2	7.5	21.0	19.2	0.97	Fine, Cld, O/N Rain
19	30.4	21.8	17	18	64	78	1.0	8.6	9.1	10.5	25.2	22.8	1.17	Rain, Fine
20	30.2	23.8	18	18	66	73	0.0	9.2	7.3	10.3	25.5	23.0	1.20	Fine
21	31.0	23.4	17	18	61	68	0.0	9.4	5.7	10.6	25.1	22.1	1.15	Fine
22	31.3	24.5	17	19	62	78	0.0	8.8	8.6	9.7	24.8	22.1	1.16	Fine
23	30.9	24.3	18	19	66	78	0.0	7.8	8.4	9.8	24.4	21.9	1.14	Fine
24	31.1	24.2	18	20	65	80	0.0	9.6	8.4	10.4	25.6	22.7	1.18	Fine
25	30.9	21.5	17	18	56	68	0.0	10.2	6.3	10.6	26.1	23.1	1.19	Fine
26	31.5	21.0	17	18	57	62	0.0	9.8	5.9	10.5	26.2	23.0	1.19	Fine
27	33.2	19.2	18	17	69	58	0.0	10.0	6.5	10.2	26.2	23.1	1.22	Fine
28	33.9	22.2	17	19	63	66	0.0	9.2	6.8	10.4	26.2	23.2	1.21	Fine
29	31.8	25.2	18	21	67	77	0.0	7.2	7.7	9.4	23.0	20.2	1.05	Fine
30	32.3	26.3	21	22	71	79	0.0	8.4	8.2	9.1	23.5	20.5	1.07	Fine
31	31.6	26.2	20	21	66	75	0.0	9.0	7.1	10.3	25.3	22.4	1.16	Fine

	Temperature C°		Humidity		Rain	Evap.	Radiation						
	Max	Min	Dew Point	am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R	
Avg.	30.7	22.5	17.7	19.5	64.9	72.5		8.1	7.5	9.3	23.6	21.6	1.11
Total							45.5	252.4	231.5	289.5	732.7	668.4	34.44

17,526 15,989 Total Langley's
565 516 Avge 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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November 2018 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m ²)		Remarks	
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N		UV-R
1	32.1	25.6	19	21	64	79	0.0	10.0	5.2	9.1	25.8	23.4	1.22	Fine
2	31.9	24.0	19	20	66	64	2.6	10.2	0.0	8.8	24.8	22.5	1.18	Fine
3	31.8	22.6	18	21	60	78	0.0	11.2	7.5	10.2	26.8	24.5	1.25	Fine
4	31.5	24.0	20	21	65	74	0.0	10.8	6.6	10.4	26.4	23.9	1.24	Fine
5	31.9	23.5	19	21	66	75	0.0	8.8	5.7	9.5	25.2	22.7	1.20	Fine
6	32.3	24.4	18	21	60	74	0.0	10.8	4.7	9.7	26.0	23.6	1.25	Fine
7	32.9	24.6	18	20	56	64	0.0	10.2	0.0	10.1	26.7	24.3	1.27	Fine
8	34.0	24.2	19	21	63	77	0.0	10.8	5.8	10.0	26.5	23.9	1.22	Fine
9	31.6	25.0	20	20	75	73	8.5	9.4	7.5	7.2	20.8	19.0	1.01	Fine, Cloud, Rain
10	31.8	25.2	18	21	57	76	0.0	9.4	6.2	8.4	24.4	22.3	1.15	Fine
11	32.2	24.1	17	18	54	58	0.0	11.0	0.0	10.5	26.1	23.6	1.25	Fine
12	32.3	23.5	16	18	56	59	0.0	11.2	0.0	10.4	27.3	24.7	1.29	Fine
13	31.6	22.8	17	19	59	65	0.0	11.4	6.0	10.6	27.3	24.8	1.31	Fine
14	31.9	23.5	19	20	63	72	0.0	11.8	5.4	10.6	27.0	24.3	1.28	Fine
15	31.8	24.1	18	20	59	70	0.0	10.2	0.0	10.8	27.4	24.8	1.30	Fine
16	32.2	24.1	17	19	61	67	0.0	10.6	7.3	10.4	27.1	24.3	1.26	Fine
17	32.1	23.2	17	18	58	65	0.0	10.6	5.9	9.9	26.9	24.1	1.24	Fine
18	32.0	22.9	17	19	59	70	0.0	10.8	6.4	10.3	27.1	24.5	1.28	Fine
19	32.2	25.4	19	21	64	76	0.0	11.2	4.1	9.4	25.7	23.3	1.20	Fine
20	31.7	25.6	18	20	59	75	0.0	10.8	7.5	8.2	22.3	20.0	1.06	Fine
21	32.7	25.3	18	20	61	71	0.0	10.6	6.3	10.3	26.7	23.9	1.23	Fine
22	33.1	25.9	19	20	63	73	0.0	9.6	6.6	9.5	24.0	21.5	1.10	Fine, O/N Shower
23	33.8	24.3	20	19	77	83	5.5	8.6	8.8	9.7	25.6	23.2	1.23	Fine
24	35.7	24.3	19	18	71	64	0.0	8.8	5.5	10.3	27.2	24.2	1.26	Fine
25	40.9	25.5	16	17	50	53	0.0	10.0	0.0	10.2	27.3	24.2	1.29	Fine
26	41.8	27.4	18	17	57	48	0.0	8.8	0.0	10.7	27.8	24.7	1.31	Fine
27	43.7	24.6	17	17	52	55	0.0	14.2	0.0	7.3	21.6	19.1	1.02	Fine, Lt Cloud
28	43.3	23.7	15	24	48	92	0.0	10.8	6.8	6.8	17.8	15.9	0.77	Fine, Cloud, Rain
29	41.6	22.9	19	17	65	45	24.5	8.0	7.3	10.6	27.9	24.8	1.29	Rain, Fine
30	39.7	24.4	16	18	43	49	0.0	12.0	0.0	10.3	27.7	24.7	1.27	Fine

	Temperature C°			Humidity		Rain	Evap.	Radiation					
	Max	Min	Dew Point	am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R	
Avg.	34.3	24.4	18.0	19.5	60.4	68.1		10.4	4.4	9.7	25.7	23.2	1.21
Total							41.1	312.6	133.1	290.2	771.2	694.7	36.23

18,447 16,618 Total Langley's
615 554 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)

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December 2018 Daily Weather Record: Townsville

Date	Temperature (°C)		Relative Humidity %		Rain	Evap.	Wet	Sun	Global Radiation (MJ/m ²)			Remarks		
	Ambient	Dew Point			mm	mm	Time	Shine			UV-R			
	Max	Min	9am	9pm	9am	9pm	Hours	Hours	Horiz	19°N	Horiz			
1	36.1	24.0	18	21	66	75	0.0	11.6	4.2	10.6	29.6	27.3	1.51	Fine
2	35.1	27.5	17	18	59	63	0.0	10.8	0.0	10.2	28.5	26.5	1.43	Fine
3	35.9	26.8	20	20	67	74	0.0	11.2	5.1	10.5	28.9	26.5	1.40	Fine
4	35.2	27.4	20	21	69	72	2.5	11.0	5.6	10.6	28.8	26.4	1.44	Fine, O/N Rain
5	35.0	26.7	19	21	67	75	0.0	10.4	4.8	10.3	28.6	26.7	1.42	Fine
6	33.7	22.6	21	20	82	63	11.5	8.8	8.0	8.4	23.2	21.3	1.18	Fine, O/N Storm
7	30.8	24.7	19	19	63	64	0.0	3.0	0.0	2.7	9.0	8.7	0.45	Cloud, Shower
8	31.9	23.5	18	19	57	65	1.0	2.6	7.7	4.5	10.0	9.5	0.48	Cloud, Shower
9	28.3	22.8	23	24	89	92	6.5	1.6	12.7	1.6	5.1	4.8	0.26	Cloud, Shower
10	28.7	23.3	22	23	87	95	25.0	1.4	17.5	0.0	3.7	3.6	0.17	Overcast, Rain
11	30.8	24.2	22	23	81	85	51.0	3.0	10.6	3.8	10.2	9.6	0.49	Rain, Cloud
12	32.2	25.4	19	22	74	85	0.5	8.2	7.9	8.3	24.1	22.0	1.20	Shower, Cloud, Fine
13	33.1	25.8	20	21	73	76	0.0	9.6	5.4	8.5	25.6	23.4	1.28	Fine
14	32.0	22.6	19	20	70	76	33.5	10.6	10.3	9.9	28.3	25.9	1.41	Fine, O/N Rain
15	31.9	26.0	22	25	85	96	2.5	5.4	11.2	4.2	12.4	11.3	0.54	Cloud, O/N Rain
16	32.4	24.1	23	22	96	84	118.5	6.0	15.3	2.6	13.2	12.2	0.62	Rian, Cloud
17	37.9	24.0	17	19	59	62	5.5	11.4	8.4	11.0	30.0	27.5	1.53	Shower, Fine
18	35.9	26.1	17	20	57	63	0.0	10.8	0.0	10.1	28.3	26.3	1.42	Fine
19	34.3	26.2	18	20	62	67	0.0	11.2	0.0	10.7	29.7	27.4	1.50	Fine
20	34.2	26.7	19	21	70	75	0.0	10.6	6.9	10.6	28.9	26.8	1.47	Fine
21	33.9	26.0	19	21	66	73	0.0	11.0	5.8	10.9	29.7	27.3	1.51	Fine
22	33.9	26.4	20	22	71	79	0.0	8.2	7.1	7.9	22.4	20.5	1.12	Fine, O/N Storm
23	33.7	25.7	20	21	72	77	10.5	9.4	7.9	9.0	27.5	25.1	1.36	Fine, Shower
24	32.3	24.0	19	18	66	59	4.0	5.4	5.0	6.8	17.7	16.7	0.85	Rain, Fine
25	33.1	24.0	19	20	64	70	0.0	6.6	5.8	7.2	18.4	17.3	0.88	Fine, Cloud
26	33.7	23.7	19	20	61	69	0.0	8.0	6.3	8.5	24.0	22.2	1.17	Fine
27	33.5	25.9	19	19	61	63	0.0	9.2	0.0	9.3	26.8	24.7	1.31	Fine
28	33.7	24.5	18	20	57	68	0.0	10.2	4.6	10.4	29.2	26.9	1.46	Fine
29	34.1	25.8	17	18	54	58	0.0	7.8	0.0	8.6	24.3	22.6	1.22	Fine
30	33.9	25.5	20	21	71	75	1.5	9.4	8.5	9.9	27.9	25.9	1.41	,Fine, O/N Shower
31	32.3	24.4	20	21	66	79	0.0	7.4	7.9	8.1	23.6	21.7	1.12	Fine

	Temperature C°				Humidity		Rain	Evap.	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew Point		am	pm	mm	mm			Horiz	19° N	UV-R
Avg.	33.3	25.0	19.5	20.6	69.1	73.4		8.1	6.5	7.9	22.5	20.8	1.12
Total							274.0	251.8	200.5	245.7	697.6	644.6	34.60

16,687 15,419 Total Langleys
538 497 Avge 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.