



Allunga Exposure Laboratory

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Tel: 61-7-4778-1697 Fax: 61-7-4422-0009 1209-1231 Flinders Hwy Brookhill Qld 4811

2015 Overview: Daily Weather Record

Temperature (°C)		Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m²)					
	Ambient	Dew Point				Time	Shine			UV-R			
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz
January	32.4	24.9	22.3	21.7	68	71	132.5	304.4	215.0	333.5	730.8	697.9	42.7
Febuary	31.8	25.0	23.5	23.3	76	80	287.5	197.0	324.9	235.5	574.2	564.4	30.0
March	32.0	23.1	20.5	21.5	64	74	126.5	248.2	245.0	314.2	710.2	731.1	37.1
April	30.0	20.0	17.5	18.9	61	70	10.5	238.4	179.3	268.2	588.5	630.2	29.3
May	28.2	18.1	17.1	17.5	67	73	12.0	207.6	257.2	271.3	511.7	583.7	24.3
June	25.3	15.2	12.8	14.8	60	72	11.5	145.6	206.5	230.1	491.7	556.8	20.0
July	25.8	12.5	10.1	12.3	56	72	5.0	168.7	186.0	291.5	557.0	639.0	25.1
August	25.5	13.5	12.4	13.7	61	70	1.5	222.2	207.0	293.3	628.3	690.5	27.8
September	27.4	18.1	15.8	17.6	61	76	6.0	218.2	284.3	283.6	662.6	694.1	31.3
October	29.2	21.7	18.9	19.2	66	73	44.0	252.4	207.7	278.3	657.8	656.7	34.4
November	30.3	23.5	19.8	20.6	64	75	96.5	267.2	163.1	309.2	706.8	681.8	38.1
December	32.4	24.9	21.6	22.5	63	75	121.5	295.0	201.0	317.4	714.6	678.5	39.3
	Temperature C°		Humidity				Rain	Evap.			Radiation		
	Max	Min	Dew Point		am	pm	mm	mm	Wet Hrs	Sun Hrs	Horiz	19° N	UV-R
Average	29.2	20.0	17.7	18.6	63.9	73.4	71.3	230.4	223.1	285.5	627.9	650.4	31.6
Total							855.0	2764.9	2677.0	3426.1	7534.2	7804.7	379.40

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

180,218 **186,688** Total Langleys
15,018.2 **15,557.3** Average Langleys per month



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January 2015 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)				Remarks
	Ambient Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	UV-R	
1	32	25	20	21	57	70	0.0	9.8	0.0	11.4	25.6	24.2	1.33		Fine
2	31	26	22	22	68	72	0.0	11.2	2.0	10.0	23.8	22.6	1.39		Fine
3	31	25	22	21	66	68	0.0	10.4	2.2	11.4	25.6	24.2	1.34		Fine
4	32	27	23	22	68	72	0.0	11.2	8.2	11.9	25.7	24.3	1.42		Fine
5	30	23	24	22	90	73	12.5	12.0	13.9	8.5	21.6	20.7	1.20		Rain Fine
6	33	24	22	20	68	67	10.0	7.4	8.4	11.1	25.7	24.3	1.41		Rain Fine
7	34	24	22	21	67	69	0.0	8.0	6.9	12.5	22.7	21.3	1.40		Fine Haze
8	34	25	23	21	66	67	0.0	9.4	6.3	11.7	20.6	19.5	1.29		Fine Haze
9	33	25	23	21	71	70	5.5	10.8	14.2	6.1	16.2	15.7	1.05		Fine, Showers
10	32	24	22	21	70	70	19.5	8.4	14.9	10.8	17.2	16.4	1.05		Fine, Showers
11	32	24	22	21	69	69	2.0	8.6	11.9	11.9	21.5	20.4	1.17		Fine
12	33	25	22	21	62	69	0.0	9.6	3.2	11.1	18.5	17.6	1.22		Fine, Showers
13	32	24	21	21	65	72	8.5	12.6	8.6	11.1	23.1	22.0	1.24		Fine
14	31	24	21	18	67	59	2.0	11.6	3.5	11.9	27.9	26.5	1.51		Fine
15	31	24	19	21	67	76	0.0	12.0	0.0	12.5	26.3	24.9	1.50		Fine
16	31	23	21	20	63	70	0.0	10.8	3.0	12.2	27.5	26.1	1.49		Fine
17	33	24	21	19	62	63	0.0	7.4	2.6	12.0	26.3	24.9	1.50		Fine
18	31	26	23	22	67	73	0.0	12.0	0.0	5.5	19.1	18.7	1.20		Fine
19	31	25	25	25	87	82	15.0	8.8	8.6	4.7	16.2	15.9	1.20		Showers
20	32	26	27	26	85	88	27.5	8.6	16.6	8.4	21.5	20.9	1.31		Fine, Showers
21	33	25	24	25	76	81	2.5	4.2	7.7	10.0	23.6	22.7	1.45		Fine
22	35	27	23	25	71	79	0.0	6.2	8.5	10.9	22.2	21.2	1.45		Fine
23	35	26	23	22	65	71	12.0	10.0	15.9	11.3	22.7	21.8	1.45		Fine, Showers
24	32	25	21	21	60	66	15.5	12.0	14.4	12.1	27.3	26.1	1.50		Fine, Showers
25	32	25	20	21	56	67	0.0	9.0	0.0	11.9	27.5	26.3	1.55		Fine
26	32	23	22	21	65	64	0.0	12.0	7.1	12.4	23.8	22.7	1.48		Fine
27	33	25	22	20	64	63	0.0	12.8	0.0	12.2	26.9	25.7	1.55		Fine
28	32	25	20	20	56	63	0.0	11.8	5.6	12.2	27.5	26.4	1.55		Fine
29	33	25	21	21	62	69	0.0	9.8	3.9	10.7	24.6	23.7	1.50		Fine
30	34	26	24	25	75	80	0.0	8.0	8.9	11.6	26.6	25.6	1.53		Fine
31	35	28	26	26	74	83	0.0	8.0	8.0	11.5	25.5	24.6	1.50		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.	32.4	24.9	22.3	21.7	68.0	71.1		9.8	6.9	10.8	23.6	22.5	1.38
Total							132.5	304.4	215.0	333.5	730.8	697.9	42.73

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

17,481 16,694 Total Langleys
564 539 Average Langleys



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February 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)			
	Ambient		Dew	Point								UV-R		
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	Remarks
1	34	27	26	25	72	78	0.0	8.8	3.6	11.3	25.5	24.6	1.40	Fine
2	35	27	25	23	77	85	22.5	11.6	12.5	9.4	23.1	22.4	1.30	Fine Rain
3	32	23	24	24	73	78	16.0	9.4	7.5	11.4	24.6	23.9	1.28	Fine
4	33	27	24	24	68	74	1.0	7.8	8.9	8.8	21.7	21.2	1.06	Fine
5	33	27	24	23	69	73	0.0	9.2	8.2	10.7	24.7	24.0	1.28	Fine
6	33	26	24	24	66	76	0.0	9.4	8.4	10.6	24.9	24.2	1.24	Fine
7	33	27	24	24	65	75	0.0	7.4	7.8	8.7	21.8	21.2	1.04	Fine Shwr.
8	33	26	23	24	66	81	15.5	12.2	15.3	8.5	15.3	15.0	0.84	Shwrs.
9	30	24	23	23	85	77	27.5	8.0	19.7	4.1	14.7	14.6	0.83	Shwrs.
10	30	23	23	22	98	88	38.5	1.0	16.3	2.8	10.0	9.9	0.53	Shwrs, rain
11	26	22	22	23	99	92	61.0	1.0	24.0	0.0	6.5	6.5	0.41	Rain o/cast
12	30	22	22	24	76	84	2.0	0.0	18.9	3.8	18.3	18.1	0.97	Shwrs
13	28	24	23	23	94	92	17.0	7.4	13.7	6.5	14.5	14.4	0.70	Shwr. Fine
14	32	23	23	24	74	81	18.5	0.8	16.5	10.8	25.5	25.0	1.25	Fine
15	32	25	25	24	79	81	0.0	6.2	11.9	11.6	24.8	24.3	1.22	Fine
16	34	26	24	25	73	83	0.0	6.6	8.2	11.9	25.8	25.4	1.24	Fine
17	33	27	25	24	73	79	0.0	7.0	7.7	12.2	26.6	26.2	1.32	Fine
18	33	27	25	25	73	80	0.0	8.0	10.3	12.3	26.1	25.7	1.26	Fine
19	34	27	25	26	73	82	0.0	7.4	8.4	12.0	25.6	25.3	1.30	Fine
20	33	27	25	24	71	76	0.0	9.0	9.2	11.4	24.5	24.2	1.27	Fine
21	33	27	26	24	77	71	0.0	6.6	0.0	10.3	21.5	21.3	1.28	Fine, Storm
22	32	24	24	23	76	73	33.5	9.6	17.1	7.6	13.1	13.1	1.12	Rain Cloud
23	31	22	22	20	74	71	8.0	7.0	21.0	5.4	14.9	14.9	0.81	Cloud Rain
24	30	25	20	19	64	67	2.0	7.4	12.1	3.6	14.7	14.7	0.79	Cloud Rain
25	31	25	21	20	77	83	2.5	8.0	8.8	7.5	22.4	22.2	1.13	Fine Shwr.
26	29	24	20	21	69	79	1.5	7.2	8.1	6.9	21.7	21.5	1.06	Fine Shwr.
27	31	23	23	23	95	91	13.0	6.2	8.3	6.6	18.4	18.0	0.95	Fine Rain
28	31	23	24	24	84	87	7.5	6.8	12.5	8.8	23.0	22.6	1.15	Fine Shwr.

	Temperature C°				Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew	Point	am	pm					Horiz	19° N	UV-R
Avg.	31.8	25.0	23.5	23.3	76.4	79.9		7.0	11.6	8.4	20.5	20.2	1.1
Total							287.5	197.0	324.9	235.5	574.2	564.4	30.03

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

13,735 13,500 Total Langleys
474 466 Avg Langleys



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March 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m²)			
	Ambient		Dew Point						Time	Shine	Horiz	19°N	Horiz	Remarks
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours				
1	32	24	20	25	63	83	0.0	8.0	9.7	10.7	26.5	26.6	1.33	Fine
2	35	23	9	24	27	78	0.0	8.0	11.1	11.2	27.1	27.3	1.44	Fine
3	37	25	24	24	73	78	0.0	10.2	10.1	9.7	25.3	25.5	1.07	Fine
4	32	26	24	21	68	69	0.0	7.8	0.0	7.6	19.6	19.8	1.21	Fine
5	31	29	20	20	70	74	0.0	7.2	0.0	9.7	20.5	20.7	0.86	Fine
6	30	22	22	23	80	82	23.5	10.2	12.1	8.9	18.9	18.6	0.94	Fine/Rain
7	30	22	21	22	69	79	11.0	5.8	15.4	9.6	21.0	21.3	1.05	Fine/Rain
8	31	23	21	20	67	69	25.0	6.2	16.6	11.0	22.9	23.3	1.33	Fine/Rain
9	31	22	21	21	67	72	0.0	7.4	12.0	11.0	23.2	23.7	1.34	Fine
10	31	22	22	22	68	75	0.0	7.6	8.4	11.1	26.5	27.0	1.39	Fine
11	32	23	23	22	70	72	0.0	8.2	6.1	11.2	26.2	26.8	1.37	Fine
12	30	24	22	23	68	91	30.0	9.0	4.6	3.3	17.4	17.5	0.92	Fine/Rain
13	32	23	19	22	58	76	15.5	4.8	13.3	10.9	25.1	25.8	1.26	Fine/Rain
14	33	21	18	20	54	72	0.0	7.4	4.0	11.0	25.8	26.5	1.37	Fine
15	38	20	19	21	61	67	0.0	8.0	10.1	10.9	24.9	25.7	1.37	Fine
16	35	22	23	23	69	73	0.0	8.0	9.8	11.3	24.1	24.9	1.24	Fine
17	36	21	20	25	56	85	0.0	6.2	13.8	11.3	26.0	26.9	1.33	Fine
18	35	21	20	24	54	76	0.0	11.0	13.0	11.2	25.6	26.5	1.32	Fine
19	32	27	23	23	67	73	0.0	9.6	0.0	10.0	20.5	21.2	1.05	Fine
20	32	25	20	20	59	71	0.0	8.6	6.4	10.9	24.6	25.6	1.25	Fine
21	31	24	21	19	62	64	0.0	8.0	0.0	10.3	23.3	24.1	1.17	Fine
22	31	24	20	21	59	72	0.0	8.0	0.0	10.6	20.1	20.9	1.10	Fine
23	31	24	20	19	64	64	0.0	9.0	5.6	8.6	15.9	16.4	0.81	Fine
24	29	20	19	19	63	72	0.5	8.6	10.7	6.6	15.3	15.7	1.09	O/Night Shower
25	30	21	19	20	62	66	9.5	8.2	10.6	11.0	22.5	23.6	1.18	Fine/Rain
26	30	22	19	20	61	70	0.0	9.4	6.9	10.7	23.3	24.5	1.15	Fine
27	30	23	19	20	63	71	11.5	7.8	10.7	10.9	23.4	24.6	1.30	Fine/Rain
28	31	22	21	21	69	78	0.0	6.8	8.4	11.1	24.6	26.0	1.29	Fine
29	32	22	22	22	72	81	0.0	8.0	8.8	10.6	24.5	25.9	1.23	Fine
30	31	23	22	22	65	73	0.0	5.4	6.8	10.6	21.8	23.0	1.08	Fine
31	32	25	22	17	66	57	0.0	9.8	0.0	10.7	23.8	25.2	1.26	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.	32.0	23.1	20.5	21.5	64	74		8.0	7.9	10.1	22.9	23.6	1.20
Total							126.5	248.2	245.0	314.2	710.2	731.1	37.10

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

16,988 17,488 Total Langleys
548 564 Average Langleys



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April 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)				Remarks
	Ambient		Dew	Point	9am	9pm	mm	mm	Hours	Hours	Horiz	UV-R			
	Max	Min	9am	9pm								19°N	Horiz		
1	31	23	19	22	60	79	5.5	8.0	10.3	11.1	23.7	25.2	1.25	Fine	
2	30	22	20	21	69	75	0.0	8.2	7.2	9.2	16.8	17.7	0.91	Fine/Cloud	
3	31	20	20	20	68	67	3.0	8.0	11.5	10.3	22.6	24.0	1.17	Fine	
4	31	22	20	18	62	63	0.0	9.6	2.2	5.8	14.7	15.1	0.76	Fine/Cloud	
5	31	24	19	21	61	75	0.0	8.4	9.8	9.4	20.2	19.9	1.02	Fine/Cloud	
6	31	23	20	22	68	76	0.0	8.0	4.9	7.7	20.3	20.7	1.06	Fine/Cloud	
7	30	22	20	21	65	78	0.0	5.2	5.8	10.8	23.3	25.0	1.12	Fine	
8	31	20	20	21	70	73	0.0	7.0	11.2	10.5	22.5	24.1	1.13	Fine	
9	32	22	19	20	62	72	0.0	7.2	9.1	10.5	20.3	21.8	1.05	Fine	
10	30	21	19	19	63	71	0.0	11.8	0.0	10.7	20.6	22.2	1.05	Fine	
11	30	21	18	20	61	77	0.0	8.8	4.0	10.2	19.9	21.3	1.03	Fine	
12	32	20	17	18	52	72	0.0	8.0	12.0	11.0	24.4	26.5	1.21	Fine	
13	28	18	15	17	61	71	0.0	13.0	8.8	11.4	25.4	27.6	1.30	Fine	
14	28	11	16	18	48	60	0.0	7.2	4.8	11.3	24.8	27.1	1.28	Fine	
15	29	12	17	16	58	65	0.0	6.6	5.8	11.4	24.2	26.4	1.22	Fine	
16	30	17	18	18	64	68	0.0	8.0	7.2	8.8	19.0	20.3	0.95	Fine	
17	29	19	16	20	57	74	0.0	8.2	7.1	8.9	18.2	19.6	0.84	Fine	
18	31	18	17	21	57	78	0.0	5.8	6.8	11.2	23.1	25.3	1.17	Fine	
19	30	19	18	21	61	76	0.0	7.8	10.5	9.2	17.5	19.0	0.68	Fine	
20	30	22	17	19	58	69	0.0	7.2	2.6	5.1	15.5	16.2	0.66	Fine/Cloud	
21	30	21	15	16	51	60	0.0	8.0	0.0	10.9	21.1	23.2	1.02	Fine	
22	29	19	14	17	51	67	0.0	8.0	0.0	9.8	20.8	22.7	1.05	Fine	
23	30	21	15	13	55	49	0.0	9.8	4.7	5.9	16.0	16.9	0.79	Fine/Cloud	
24	29	18	14	15	57	59	2.0	7.0	5.4	6.0	17.3	18.3	0.65	Fine/Cloud	
25	30	20	16	17	65	66	0.0	7.0	0.0	5.9	14.9	15.7	0.67	Fine/Cloud	
26	30	21	15	18	55	67	0.0	7.8	7.0	10.5	19.4	21.5	1.18	Fine	
27	28	21	19	19	66	69	0.0	7.6	3.6	0.6	7.8	8.0	0.42	Cloud	
28	30	23	18	19	58	74	0.0	6.6	8.5	5.0	15.8	16.6	0.75	Fine/Cloud	
29	29	21	18	18	64	71	0.0	7.2	2.7	9.8	17.7	19.6	0.86	Fine/Cloud	
30	30	20	17	21	70	82	0.0	7.4	5.8	9.3	20.7	22.7	1.09	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.	30.0	20.0	17.5	18.9	60.6	70.1	0.4	7.9	6.0	8.9	19.6	21.0	0.98
Total							10.5	238.4	179.3	268.2	588.5	630.2	29.34

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

14,077 15,074 Total Langleys
469 502 Average Langleys



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1209-1231 Flinders Hwy Brookhill Qld 4811

May 2015 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)			Remarks
	Ambient								Hours	Hours	Horiz	19°N	UV-R	
	Max	Min	9am	9pm	9am	9pm	mm	mm						
1	30	19	15	16	55	62	0.0	7.0	0.0	8.0	16.4	18.2	0.82	Fine
2	29	18	16	17	59	70	0.0	6.6	8.1	10.3	19.4	22.1	0.82	Fine
3	28	14	15	17	58	72	0.0	9.0	0.0	10.5	20.5	23.5	0.91	Fine
4	28	15	16	17	67	76	0.0	6.8	12.3	10.2	18.5	21.1	0.86	Fine
5	28	14	16	16	63	69	0.0	8.0	10.1	10.4	20.9	23.9	1.00	Fine
6	28	14	17	16	67	66	0.0	6.4	5.4	10.8	19.0	22.0	0.93	Fine
7	29	16	16	18	63	69	0.0	6.0	8.6	10.5	18.4	21.2	0.90	Fine
8	28	17	17	17	66	71	0.0	6.0	10.2	10.2	17.9	20.6	0.86	Fine
9	28	18	17	18	64	78	0.0	7.4	9.7	10.8	16.9	19.6	0.87	Fine
10	28	17	18	20	71	85	0.0	6.2	12.1	10.5	14.9	17.2	0.85	Mist/Fine
11	28	17	18	19	72	73	0.0	5.2	12.9	10.0	17.5	20.2	0.80	Mist/Fine
12	28	17	18	19	70	79	0.0	6.6	14.7	10.2	18.9	21.9	0.91	Mist/Fine
13	28	20	21	20	78	85	0.0	4.2	14.1	10.2	17.5	20.3	0.91	Mist/Fine
14	30	19	20	21	76	80	0.0	5.8	15.2	10.5	17.3	20.1	0.86	Mist/Fine
15	29	18	19	20	71	78	0.0	6.4	16.1	9.9	19.1	22.1	0.92	Mist/Fine
16	29	22	20	18	74	70	1.0	6.2	14.5	9.9	13.8	16.0	0.67	Mist/Fine
17	28	22	18	17	64	66	0.0	9.0	8.0	8.2	15.7	17.8	0.70	Fine
18	28	20	15	15	58	65	0.0	8.0	0.0	8.7	17.0	19.4	0.80	Fine
19	27	18	14	18	55	84	0.0	9.4	5.3	5.7	14.5	16.0	0.58	Light cloud
20	28	18	15	16	60	67	1.5	3.6	4.4	8.9	14.5	16.7	0.67	Light cloud
21	28	19	19	17	74	71	0.0	8.4	0.0	10.0	17.5	20.4	0.80	Fine
22	27	17	17	18	68	83	0.0	6.4	8.3	8.8	17.3	19.9	0.89	Fine
23	28	16	17	18	72	74	0.0	6.0	12.3	7.0	13.0	14.5	0.62	Fine
24	28	20	18	18	68	69	0.0	6.4	6.7	4.1	13.7	14.7	0.74	Interm. Cld
25	29	21	19	19	69	74	0.0	5.6	0.0	6.3	14.9	16.6	0.66	Interm. Cld
26	29	17	16	15	62	61	0.0	5.2	11.7	9.5	14.3	16.6	0.70	Fine
27	29	20	13	13	50	53	0.0	9.4	0.0	8.3	17.9	20.5	0.73	Fine
28	28	21	14	17	61	82	0.0	9.8	3.5	5.3	13.6	14.9	0.64	Interm. Cld
29	28	19	16	17	68	73	4.0	7.2	12.1	6.3	13.8	15.4	0.64	Interm. shw
30	26	20	21	18	92	79	3.5	5.8	7.0	3.3	10.3	11.1	0.53	Cloud Shrs
31	27	17	19	19	81	80	2.0	3.6	13.9	8.0	16.8	19.2	0.75	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.	28.2	18.1	17.1	17.5	67	73		6.7	8.3	8.8	16.5	18.8	0.79
Total							12.0	207.6	257.2	271.3	511.7	583.7	24.34

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

12,240 13,962 Total Langleys
395 450 Avg Langleys



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June 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)			
	Ambient		Dew	Point								UV-R		
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	Remarks
1	25	17	11	15	54	70	0.0	7.2	7.0	11.1	20.5	24.2	0.85	Fine
2	24	10	10	17	61	57	0.0	5.8	5.5	10.5	18.0	21.0	0.73	Fine
3	24	14	17	17	76	84	0.0	3.6	9.4	4.2	9.7	10.3	0.54	Cloud
4	26	18	18	17	75	80	1.5	2.4	14.7	10.2	17.8	20.7	0.73	Fine
5	26	16	18	19	76	85	0.5	5.2	12.7	9.3	17.3	19.9	0.68	Fine
6	26	16	18	19	72	86	0.0	5.2	13.3	10.5	16.0	18.7	0.71	Fine
7	28	16	17	17	73	79	0.0	4.0	14.4	5.7	16.0	17.3	0.67	Cloud
8	28	15	14	16	55	70	0.0	4.0	10.0	9.7	19.5	22.6	0.69	Fine
9	27	15	13	14	58	62	0.0	5.0	0.0	6.7	18.1	20.0	0.65	Fine
10	27	16	14	13	61	63	0.0	4.0	0.2	6.5	17.1	18.8	0.63	Fine
11	26	16	15	15	64	75	0.0	4.4	14.1	10.2	16.7	19.6	0.72	Fine
12	26	12	14	16	68	76	0.0	5.4	7.3	8.2	17.6	19.9	0.67	Fine
13	25	19	16	19	67	84	0.0	4.2	8.3	0.2	10.5	10.5	0.50	Cloud
14	26	20	18	18	76	81	0.0	3.6	5.6	5.8	12.6	13.8	0.64	Cloud
15	25	19	13	12	62	63	1.0	4.6	14.0	9.6	19.3	22.3	0.72	Cloud
16	22	15	4	1	44	36	0.0	3.8	8.1	10.9	20.2	24.0	0.71	Fine
17	23	12	4	11	40	67	0.0	10.0	0.0	10.9	19.9	23.6	0.74	Fine
18	25	11	6	12	39	62	0.0	5.2	3.9	6.0	16.1	17.6	0.67	Interm. Cld
19	27	14	13	13	58	64	0.0	4.0	0.0	9.9	18.5	21.6	0.69	Fine
20	25	17	13	16	64	89	5.0	5.4	0.0	0.9	8.1	8.3	0.42	Cloud Shwr
21	26	16	15	15	70	78	3.5	4.0	18.6	9.2	17.5	20.2	0.72	Shwr, Fine
22	26	14	14	18	62	87	0.0	4.0	2.5	4.7	11.5	12.4	0.52	Fine Cloud
23	25	20	17	16	71	68	0.0	3.8	5.3	6.1	16.2	16.5	0.80	Cloud
24	27	18	15	17	62	75	0.0	4.2	0.2	7.2	15.4	17.2	0.60	Fine Cloud
25	26	18	13	14	58	68	0.0	7.0	0.4	0.4	10.8	10.9	0.54	Cloud
26	25	14	10	16	48	78	0.0	3.6	5.4	7.0	17.6	19.5	0.67	Fine Cloud
27	25	17	13	15	61	81	0.0	6.0	12.4	5.9	13.4	14.7	0.51	Fine Cloud
28	24	14	7	12	35	57	0.0	4.0	9.8	10.9	19.9	23.5	0.72	Fine
29	23	10	5	10	40	69	0.0	7.2	0.0	10.9	20.1	23.8	0.75	Fine
30	22	8	10	15	47	79	0.0	4.8	8.9	10.8	19.8	23.4	0.78	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.	25.3	15.2	12.8	14.8	60	72		4.9	7.1	7.7	16.4	18.6	0.67	
Total							11.5	145.6	212.0	230.1	491.7	556.8	19.97	

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

11,761 13,319 Total Langleys
392 444 Avg Langleys



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1209-1231 Flinders Hwy Brookhill Qld 4811

July 2015 Daily Weather Record: Townsville

Date	Temperature (°C)		Dew Point		Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)		UV-R	Remarks
	Ambient Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	
1	26	11	18	11	90	77	0.0	4.0	14.3	10.4	18.4	21.6	0.83	Fine
2	25	9	10	12	60	63	0.0	5.6	7.2	7.8	15.0	16.9	0.73	Fine
3	27	13	15	15	70	68	0.0	5.0	0.0	3.1	11.7	12.3	0.56	Fine cloud
4	25	18	17	16	74	73	1.5	4.0	3.3	0.9	10.3	10.4	0.44	Fine cloud
5	27	19	16	16	65	70	0.5	3.6	2.4	6.3	16.1	17.7	0.65	Fine cloud
6	28	21	17	19	65	81	0.0	5.8	0.0	6.9	13.7	15.2	0.58	Fine cloud
7	25	20	17	16	72	69	0.0	5.2	0.0	0.0	3.9	3.9	0.28	Cloud
8	26	18	14	13	62	67	0.5	3.4	5.0	4.4	10.9	11.7	0.44	Cloud
9	25	11	6	13	46	80	0.0	5.2	8.4	11.0	19.3	22.7	0.89	Fine
10	25	10	12	14	67	77	0.0	5.6	13.7	10.8	18.8	22.1	0.87	Fine
11	28	16	0	10	21	75	0.0	8.0	7.4	11.0	19.5	22.7	0.80	Fine
12	25	6	8	7	56	58	0.0	6.6	10.0	11.0	20.2	23.5	0.90	Fine
13	24	7	10	12	57	76	0.0	4.0	8.4	10.9	20.3	23.5	0.92	Fine
14	26	11	14	16	66	83	0.0	5.2	1.7	10.8	18.9	21.8	0.88	Fine
15	26	12	16	16	70	78	0.0	4.0	13.1	10.6	19.4	22.3	0.87	Fine
16	27	18	17	20	64	90	0.0	4.0	5.9	5.0	11.6	12.3	0.63	Fine cloud
17	27	18	8	10	49	71	2.5	5.2	10.6	10.2	19.0	21.7	0.82	Fine cloud
18	27	10	6	11	42	71	0.0	7.4	0.0	11.3	20.4	23.6	0.88	Fine
19	26	10	5	10	39	66	0.0	6.2	0.0	11.3	19.8	22.9	0.87	Fine
20	26	8	0	8	28	68	0.0	6.0	4.3	11.3	21.6	25.0	0.95	Fine
21	26	10	0	6	24	63	0.0	6.4	0.0	11.3	21.1	24.3	0.90	Fine
22	26	10	14	13	74	80	0.0	4.8	12.5	10.8	19.0	22.3	0.87	Fine
23	28	11	14	15	85	80	0.0	4.0	13.4	9.4	18.7	21.5	0.84	Fine
24	24	15	0	0	29	39	0.0	7.4	3.5	9.5	19.0	21.8	0.79	Fine
25	24	8	0	5	30	57	0.0	8.0	0.0	11.1	19.1	22.4	0.84	Fine
26	24	7	0	5	25	53	0.0	6.2	0.0	11.0	19.2	22.5	0.89	Fine
27	23	17	2	6	37	65	0.0	5.4	0.0	11.0	19.4	22.7	0.87	Fine
28	24	6	9	12	63	73	0.0	5.2	0.0	11.0	19.2	22.4	0.88	Fine
29	26	10	12	15	64	81	0.0	4.0	7.3	10.8	19.0	22.2	0.88	Fine
30	26	12	17	18	74	87	0.0	4.0	13.3	10.9	18.3	21.3	0.87	Fine
31	28	15	17	20	77	90	0.0	4.0	14.5	10.6	18.8	21.8	0.85	Fine

	Temperature C°		Dew Point		Humidity		Rain	Evap.	Wet Hrs	Sun Hrs	Radiation		UV-R
	Max	Min	9am	9pm	am	pm	mm	mm			Horiz	19° N	
Avg.	25.8	12.5	10.1	12.3	56	72		5.3	5.8	9.1	17.4	20.0	0.78
Total							5.0	168.7	186.0	291.5	557.0	639.0	25.05

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

13,324 15,284 Total Langleys
430 493 Avg Langleys



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August 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet Time	Sun Shine	Global Radiation (MJ/m²)				Remarks
	Ambient		Dew	Point	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	UV-R		
	Max	Min	9am	9pm									Horiz	Remarks	
1	24	13	7	13	55	70	0.0	8.0	7.0	10.3	20.9	23.0	0.94	Fine	
2	23	17	12	14	60	67	0.0	7.6	5.1	0.3	6.4	6.5	0.30	Overcast	
3	24	13	12	13	65	71	0.0	5.6	6.6	4.3	20.3	21.0	0.75	Fine	
4	24	11	11	10	62	63	0.0	5.2	7.9	10.8	21.0	23.0	0.96	Fine	
5	23	10	12	12	63	65	0.0	5.6	8.8	11.2	21.9	25.0	0.97	Fine	
6	25	11	13	16	66	84	0.0	6.2	8.4	10.9	20.2	22.9	0.96	Fine	
7	25	14	17	16	78	83	0.0	4.6	13.2	9.7	18.4	20.6	0.94	Fog Fine	
8	27	12	17	17	87	87	1.5	5.6	14.3	9.6	20.7	23.1	0.96	Fog Fine	
9	26	12	3	10	34	63	0.0	6.0	10.6	11.1	22.1	25.0	0.96	Fine	
10	23	8	10	6	64	55	0.0	8.0	4.8	11.4	22.8	25.9	0.98	Fine	
11	25	8	7	11	53	69	0.0	8.0	8.1	5.1	18.6	19.6	0.51	Fine	
12	26	17	12	12	54	64	0.0	6.8	0.0	10.7	21.5	24.1	0.91	Fine	
13	25	11	9	15	51	76	0.0	8.6	5.9	9.5	20.3	22.4	0.98	Fine	
14	27	10	11	12	56	63	0.0	7.8	12.0	10.5	21.1	23.5	0.99	Mist Fine	
15	27	10	10	4	56	36	0.0	6.2	5.0	10.7	22.4	24.9	1.00	Fine	
16	26	13	12	15	57	72	0.0	7.8	6.2	11.1	21.1	23.6	0.94	Fine	
17	26	18	14	13	61	66	0.0	8.0	0.0	9.8	17.2	18.9	0.73	Fine	
18	25	11	11	15	55	78	0.0	6.8	4.4	11.2	22.8	25.4	1.01	Fine	
19	26	11	13	16	63	77	0.0	7.2	8.1	10.4	22.4	24.8	0.95	Fine	
20	26	18	15	16	68	75	0.0	7.0	5.7	10.5	23.1	25.5	0.98	Fine	
21	27	12	12	16	60	81	0.0	8.0	6.5	11.0	22.0	24.4	0.99	Fine	
22	26	14	17	17	76	81	0.0	5.2	13.5	8.4	18.1	19.5	0.92	Fine	
23	26	19	17	17	74	80	0.0	6.2	10.3	5.2	17.7	18.5	0.75	Fine	
24	26	18	15	16	66	69	0.0	7.0	7.5	10.4	20.2	22.1	0.94	Fine	
25	27	18	15	12	62	57	0.0	8.0	0.0	9.7	21.2	23.0	1.01	Fine	
26	27	14	12	13	61	59	0.0	8.0	4.4	10.0	21.8	23.7	0.94	Fine	
27	25	16	13	15	56	67	0.0	10.4	3.6	9.6	19.4	21.0	0.77	Fine	
28	27	17	14	16	68	73	0.0	8.2	4.5	7.1	14.4	15.3	0.72	Fine	
29	26	15	14	14	62	75	0.0	7.8	5.8	11.1	23.1	25.2	1.01	Fine	
30	26	14	13	16	58	73	0.0	8.0	5.0	10.7	22.1	24.0	1.01	Fine	
31	26	15	13	16	55	75	0.0	8.8	3.8	11.0	23.1	25.1	1.06	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.	25.5	13.5	12.4	13.7	61	70		7.2	6.7	9.5	20.3	22.3	0.90
Total							1.5	222.2	207.0	293.3	628.3	690.5	27.84

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

15,029 16,517 Total Langleys
485 533 Avge Langleys



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September 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m²)			Remarks
	Ambient		Dew	Point							UV-R			
	Max	Min	9am	9pm	9am	9pm					Horiz	19°N	Horiz	
1	26	17	18	19	76	88	0.0	7.0	13.4	11.0	21.3	23.1	1.05	Fine
2	26	15	19	19	79	87	0.0	5.0	14.3	10.5	20.3	21.9	1.02	Fine
3	27	21	20	19	77	82	0.0	4.8	12.9	8.9	21.1	22.4	0.94	Fine
4	28	19	18	19	73	85	0.0	7.6	9.0	9.6	22.7	24.2	1.02	Fine
5	28	21	20	21	77	84	0.0	5.2	8.6	9.2	20.3	21.5	0.98	Fine
6	31	18	5	17	25	77	0.0	5.6	8.6	11.0	24.0	25.7	1.06	Fine
7	23	16	2	12	30	65	0.0	9.4	12.7	10.9	24.8	26.6	1.09	Fine
8	24	14	13	15	57	73	0.0	7.4	5.1	10.7	19.8	21.2	1.04	Fine
9	26	18	16	17	64	73	0.0	7.4	11.4	10.8	21.9	23.4	1.09	Fine
10	27	19	16	15	62	69	0.0	6.8	5.1	10.9	22.9	24.4	1.08	Fine
11	27	15	17	17	67	74	0.0	6.4	11.9	11.0	23.0	24.5	1.09	Fine
12	27	17	16	17	58	73	0.0	7.0	7.2	11.1	24.1	25.6	1.10	Fine
13	27	18	16	16	63	69	0.0	7.4	10.2	11.0	18.6	19.8	0.79	Fine
14	27	18	14	17	58	74	0.0	9.0	5.7	7.8	14.7	15.3	0.95	Fine Cld
15	26	16	16	18	66	82	0.0	7.0	11.2	4.2	9.2	9.2	0.49	Fine Cld
16	27	17	18	17	68	71	2.5	3.6	13.8	9.0	19.8	20.7	1.03	Fine Shr
17	26	16	17	18	66	82	0.0	8.0	8.8	11.2	23.8	25.1	1.19	Fine
18	27	18	19	20	69	82	0.0	6.8	13.3	9.9	20.0	20.9	1.11	Fine
19	28	21	19	19	66	78	0.0	7.2	9.3	0.0	23.8	23.8	1.02	Fine
20	27	21	18	19	65	79	0.5	7.6	12.1	10.8	24.0	25.1	0.93	Fine o/n shr
21	29	21	19	20	69	82	3.0	7.6	11.5	11.1	22.0	23.0	1.19	Fine
22	28	16	19	19	68	81	0.0	7.0	13.2	0.0	25.7	25.7	1.15	Fine
23	28	22	18	19	65	78	0.0	6.8	12.7	11.3	23.7	24.7	1.01	Fine
24	29	22	19	20	65	78	0.0	7.6	5.8	8.8	20.9	21.5	0.91	Fine
25	30	22	21	22	74	90	0.0	6.6	5.0	7.7	20.0	20.5	0.95	Fine
26	31	21	1	17	19	70	0.0	7.2	7.2	11.3	26.4	27.3	1.22	Fine
27	29	15	17	14	62	61	0.0	9.6	10.0	10.6	27.9	28.8	1.21	Fine
28	28	14	12	15	45	61	0.0	9.4	5.7	11.5	25.9	26.8	1.19	Fine
29	28	14	13	14	50	57	0.0	8.8	1.4	10.8	25.7	26.4	1.22	Fine
30	27	20	17	16	61	66	0.0	11.4	7.2	11.0	24.3	25.0	1.18	Fine

	Temperature C°				Humidity		Rain mm	Evap. mm	Wet Hrs	Sun Hrs	Radiation		
	Max	Min	Dew Point	Point	am	pm					Horiz	19° N	UV-R
Avg.	27.4	18.1	15.8	17.6	61	76		7.3	9.5	9.5	22.1	23.1	1.04
Total							6.0	218.2	284.3	283.6	662.6	694.1	31.30

For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

15,849 16,603 Total Langley's
528 553 Avg Langley's



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October 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap	Wet	Sun	Global Radiation (MJ/m²)			
	Ambient		Dew	Point					Time	Shine				UV-R
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	Remarks
1	32	25	16	17	55	65	0.5	10.2	10.4	9.3	24.1	24.6	1.17	Fine o/n shr
2	28	22	21	23	87	88	1.0	8.6	1.5	1.6	9.4	9.4	0.33	Overcast
3	30	23	22	22	70	83	0.0	4.0	3.3	10.9	18.5	18.9	1.17	Fine
4	30	23	21	21	67	79	0.0	7.8	6.2	10.5	24.0	24.4	1.32	Fine
5	30	22	20	19	61	70	0.0	8.0	8.2	10.5	22.9	23.3	1.14	Fine
6	29	22	19	19	60	70	0.0	9.4	9.9	11.3	21.6	22.0	1.32	Fine
7	30	23	20	19	64	73	0.0	9.2	8.7	10.0	22.2	22.5	1.17	Fine
8	30	21	19	21	64	77	0.0	8.0	9.7	10.2	24.0	24.3	1.20	Fine
9	26	20	20	19	97	79	21.0	1.0	12.8	0.1	8.0	8.0	0.47	Rain
10	27	21	22	21	96	88	7.5	1.8	16.5	3.4	14.3	14.3	0.81	Shwrs
11	27	22	22	21	89	93	4.0	3.4	12.9	2.8	15.9	15.9	0.86	Shwrs
12	30	23	23	23	81	86	3.5	4.0	4.5	7.7	21.0	21.1	1.18	Fine Shwrs
13	29	24	22	20	75	75	2.0	7.0	6.0	9.5	22.9	23.0	1.20	Fine
14	30	23	20	17	66	65	0.0	9.0	3.2	7.6	16.2	16.2	0.80	Fine Shwrs
15	29	22	18	19	65	71	1.5	9.6	4.1	5.1	13.5	13.5	0.74	Inter.Cloud
16	29	21	19	20	72	75	0.0	7.2	10.2	10.5	23.2	23.2	1.30	Fine
17	29	22	20	20	66	76	0.0	9.2	8.9	11.1	24.2	24.2	1.23	Fine
18	29	22	20	21	67	79	0.0	9.0	4.9	9.2	18.4	18.4	1.03	Fine
19	30	23	22	22	78	80	3.0	8.2	8.8	7.9	20.8	20.7	1.10	Fine Shwrs
20	32	24	21	22	69	77	0.0	6.2	10.6	6.9	19.0	18.9	0.97	Fine Cld
21	32	24	20	20	64	70	0.0	8.0	3.2	10.6	22.5	22.4	1.12	Fine
22	30	23	18	15	61	57	0.0	12.0	0.7	11.0	23.5	23.3	1.19	Fine Windy
23	29	20	13	14	44	53	0.0	10.4	0.0	11.5	24.6	24.4	1.11	Fine Windy
24	29	21	12	16	42	62	0.0	12.6	0.0	9.8	26.1	25.9	1.09	Fine Windy
25	28	21	14	15	47	59	0.0	11.2	0.0	11.5	22.3	22.0	1.25	Fine Windy
26	28	17	14	17	52	68	0.0	10.4	2.3	8.4	22.1	21.9	1.20	Fine
27	28	19	15	17	54	69	0.0	10.0	7.9	11.9	25.8	25.4	1.34	Fine
28	29	20	17	18	56	69	0.0	9.2	8.0	11.8	27.6	27.1	1.42	Fine
29	28	19	18	19	61	72	0.0	9.2	7.3	12.0	26.1	25.6	1.39	Fine
30	28	21	19	20	60	74	0.0	8.8	9.6	11.7	26.1	25.5	1.37	Fine
31	29	20	19	19	60	72	0.0	9.8	10.9	12.0	27.0	26.4	1.39	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.	29.2	21.7	18.9	19.2	66	73		8.1	6.8	9.0	21.2	21.2	1.11
Total							44.0	252.4	211.2	278.3	657.8	656.7	34.35

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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.

15,735 15,708 Total Langleys
508 507 Avg Langleys



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November 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain mm	Evap mm	Wet Time Hours	Sun Shine Hours	Global Radiation (MJ/m²)				Remarks
	Ambient		Dew	Point											
	Max	Min	9am	9pm	9am	9pm					Horiz	19°N	Horiz		
1	29	24	23	19	88	70	0.0	7.6	9.3	8.5	23.6	23.2	0.58	Fine	
2	29	22	17	19	56	70	0.0	12.0	6.9	11.6	19.9	19.4	1.28	Fine	
3	30	23	19	20	61	77	0.0	9.4	0.0	10.9	25.2	24.6	1.34	Fine	
4	30	23	17	19	53	74	0.0	9.4	0.0	11.9	26.6	25.9	1.40	Fine	
5	30	22	19	21	56	78	0.0	8.6	9.9	11.3	25.2	24.5	1.34	Fine	
6	30	23	20	21	65	76	0.0	7.6	6.8	12.0	25.5	24.7	1.37	Fine	
7	30	25	19	20	58	75	0.0	9.4	8.8	11.9	27.2	26.3	1.38	Fine	
8	30	24	21	21	63	74	0.0	11.0	0.0	9.8	25.7	25.1	1.27	Fine	
9	32	25	21	21	63	76	0.0	9.4	0.0	10.4	20.9	20.2	1.22	Fine Smoke	
10	32	24	21	21	66	76	0.0	7.8	2.7	11.5	25.4	24.5	1.20	Fine Smoke	
11	30	25	20	20	60	69	0.0	8.0	0.0	9.4	24.3	23.6	1.25	Fine	
12	30	24	19	21	57	72	0.0	10.6	2.0	9.5	21.6	20.9	1.35	Fine Haze	
13	29	22	22	21	95	77	26.5	8.6	8.2	5.0	14.3	14.1	0.91	Shwrs Fine	
14	29	22	21	21	77	80	15.0	7.4	11.0	9.7	24.5	23.7	1.24	Shwrs Fine	
15	30	23	21	22	64	82	0.0	7.2	0.0	11.1	25.1	24.2	1.25	Fine	
16	30	24	19	19	59	69	0.0	8.0	6.2	11.3	23.1	22.2	1.24	Fine	
17	30	24	21	21	67	72	1.5	9.2	8.6	8.1	22.0	21.3	1.22	Fine Smoke	
18	30	25	22	22	68	79	2.0	7.8	10.6	11.4	23.0	22.1	1.38	Fine	
19	31	25	23	22	68	80	0.5	10.6	10.4	10.8	24.7	23.7	1.29	Fine	
20	32	25	22	23	65	82	0.0	7.2	4.0	12.3	26.9	25.7	1.37	Fine	
21	32	25	23	24	64	85	0.0	9.4	4.5	10.8	26.5	25.4	1.37	Fine	
22	32	25	22	22	64	76	0.0	8.8	6.4	10.3	25.8	24.8	1.36	Fine	
23	33	26	23	23	64	78	0.0	7.6	7.2	10.0	23.6	22.7	1.12	Fine	
24	28	23	23	23	87	95	40.5	10.0	11.1	1.5	10.7	10.7	0.80	Rain Shwrs	
25	29	23	20	23	69	94	8.0	3.6	11.1	7.9	15.8	15.3	1.36	Shwrs Clearing	
26	30	23	10	19	56	64	2.5	6.8	4.4	12.3	25.8	24.5	1.37	Fine	
27	30	21	15	17	49	60	0.0	11.6	0.0	11.5	25.2	24.0	1.40	Fine	
28	30	21	17	18	57	65	0.0	10.6	5.7	12.2	26.7	25.3	1.47	Fine	
29	30	22	16	17	51	58	0.0	10.8	6.9	12.1	25.0	23.7	1.45	Fine	
30	31	23	17	19	53	66	0.0	11.2	0.4	12.2	27.0	25.5	1.47	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.	30.3	23.5	19.8	20.6	64	75		8.9	5.4	10.3	23.6	22.7	1.27
Total							96.5	267.2	163.1	309.2	706.8	681.8	38.05

16,907 16,309 Total Langleys
564 544 Average Langleys

For Langleys divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

Sunshine hours are calculated the 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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December 2015 Daily Weather Record: Townsville

Date	Temperature (°C)				Relative Humidity %		Rain	Evap.	Wet Time	Sun Shine	Global Radiation (MJ/m²)			
	Ambient		Dew Point		9am	9pm								
	Max	Min	9am	9pm	9am	9pm	mm	mm	Hours	Hours	Horiz	19°N	Horiz	Remarks
1	31	24	22	23	69	79	0.0	6.4	6.7	12.1	25.0	23.6	1.31	Fine
2	32	24	22	24	63	81	0.0	8.6	8.2	10.4	25.3	24.1	1.32	Fine
3	33	26	22	25	62	82	0.0	6.4	5.6	12.1	24.6	23.3	1.30	Fine
4	33	27	24	24	71	81	0.0	10.2	0.0	11.0	25.4	24.1	1.32	Fine
5	34	26	24	25	68	81	0.0	7.6	4.6	8.6	19.2	18.4	0.98	Fine
6	33	28	24	23	66	69	15.5	7.8	5.9	7.5	24.5	23.7	1.31	Fine Shwr
7	33	26	21	23	63	72	0.0	9.8	4.5	10.2	26.3	25.0	1.35	Fine
8	33	24	20	23	65	73	0.0	9.0	7.5	11.6	23.9	22.6	1.35	Fine
9	33	26	21	24	57	78	8.0	8.8	1.4	6.6	19.3	18.7	0.85	Fine Shwr
10	32	23	23	24	73	77	19.5	8.4	10.1	11.6	25.9	24.5	1.33	Fine Storm
11	33	26	24	23	64	72	0.0	7.4	5.3	9.3	19.4	18.5	0.85	Fine Cloud
12	33	26	24	24	66	76	0.0	10.0	5.9	9.9	24.5	23.3	1.30	Fine
13	33	26	24	23	67	74	0.0	10.6	4.0	12.1	24.8	23.4	1.32	Fine
14	32	25	23	20	68	66	0.5	12.0	3.6	12.3	25.0	23.5	1.32	Fine
15	32	25	21	22	63	71	0.0	11.0	5.9	11.4	23.3	22.0	1.30	Fine
16	33	24	19	20	55	66	0.5	10.8	10.5	12.0	20.3	19.1	1.33	Fine
17	31	24	19	22	54	73	0.0	12.0	0.0	11.9	22.0	20.7	1.20	Fine
18	32	25	21	23	62	75	0.0	9.6	3.8	12.3	24.1	22.6	1.41	Fine
19	34	24	22	25	63	88	0.0	10.2	8.6	6.0	19.2	18.6	0.85	Fine Cloud
20	33	24	22	22	78	63	23.5	7.4	13.3	7.5	20.0	19.2	1.41	Fine Shwr
21	33	25	17	18	45	81	0.0	9.4	3.6	11.1	25.4	24.0	1.38	Fine Windy
22	33	24	18	20	59	65	0.0	15.2	8.8	6.1	18.7	18.1	0.85	Fine Cloud
23	30	24	23	24	94	83	12.0	9.6	10.3	1.3	13.7	13.6	0.77	Cloud Rain
24	32	24	23	24	67	82	25.5	5.8	11.0	11.8	22.1	20.8	1.43	Fine Shwr
25	31	24	24	20	78	66	16.5	10.4	14.2	9.7	21.1	20.1	1.42	Fine Cloud
26	31	24	20	23	61	77	0.0	9.4	5.9	12.2	25.2	23.7	1.51	Fine
27	31	24	20	20	57	68	0.0	10.4	6.1	11.9	22.5	21.2	1.43	Fine
28	31	23	18	21	53	71	0.0	10.4	6.4	12.3	25.8	24.3	1.49	Fine
29	32	24	20	20	61	68	0.0	9.6	6.2	12.3	25.4	23.9	1.51	Fine
30	35	25	20	24	57	79	0.0	10.0	3.5	10.3	26.8	25.5	1.42	Fine
31	33	27	25	25	74	82	0.0	10.8	9.6	12.0	25.9	24.4	1.42	Fine

	Temperature C°				Humidity		Rain	Evap.	Wet Hrs		Sun Hrs		Radiation		UV-R
	Max	Min	Dew	Point	am	pm	mm	mm					Horiz	19° N	
Avg.	32.4	24.9	21.6	22.6	64.6	74.8		9.5	6.5	10.2	23.1	21.9	1.27		
Total							121.5	295.0	201.0	317.4	714.6	678.5	39.30		
													17,093	16,230	Total Langley's
													551	524	Avg Langley's

For Langley's divide MJ/m² by 0.0418 UV-R = UV-A + UV-B (290-385 nm)

UV data recorded at AEL with Kipp & Zonen CUV5 Pyranometer

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