

Attachment 1

Climate Data

Attachment 1 – Climate data

Historical meteorological data

Parameter	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Ann.
<i>Ayr DPI Research Station Lat: 19.62S, Long: 147.38E</i>													
Mean max temp (°C) ¹	31.8	31.5	30.9	29.5	27.7	25.3	25.1	26.1	28.0	29.8	31.2	32.0	29.1
Mean min temp. ¹	22.7	22.7	21.4	18.9	16.2	12.8	11.5	12.7	14.9	18.0	20.5	22.0	17.9
Mean rainfall (mm) ¹	209.7	234.8	148.9	29.2	43.4	25.6	13.3	15.8	9.4	28.2	44.9	107.0	935.6
Highest daily rainfall (mm) ¹	189.4	210.1	254.0	103.0	234.7	78.0	50.0	83.8	44.0	179.8	117.8	206.2	254.0
Mean daily sunshine (hrs) ¹	8.1	7.2	7.4	7.8	7.4	7.7	8.3	8.7	9.2	9.4	9.1	8.9	8.3
Mean daily evaporation (mm) ²	6.7	6.2	5.7	5.2	4.3	3.8	4.0	4.8	5.8	6.9	7.3	7.3	5.7
Mean 9 am rel. hum. ¹ (%)	74	78	76	74	75	74	72	70	66	65	66	68	72
Mean 3 pm rel. hum. ³ (%)	63	67	61	59	55	55	46	47	48	53	57	59	56
Mean 9 am wind speed ⁴ (km/hr)	11.3	12.0	12.4	13.2	11.9	11.2	11.3	12.6	13.8	14.5	14.4	13.1	12.6
Mean 3 pm wind speed ⁵ (km/hr)	17.0	17.2	17.2	17.7	15.5	15.2	15.7	17.1	18.9	18.8	20.2	18.7	17.4
<i>Bowen Airport – Lat: 20.02S, Long: 148.22E</i>													
Mean max temp (°C) ⁶	31.5	31.4	30.9	29.3	27.2	24.8	24.5	25.4	27.3	29.3	30.5	31.2	28.6
Mean min temp. ⁶	23.8	23.9	22.7	20.9	18.2	15.1	13.5	14.4	16.3	19.9	22.3	23.4	19.5

Parameter	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Ann.
Mean rainfall (mm) ⁶	157.9	228.4	75.2	62.8	46.4	24.9	16.5	25.8	7.2	14.2	37.3	143.7	828.9
Mean no. days with rain >1mm ⁶	7.6	9.5	6.0	5.6	4.0	3.0	2.0	1.7	1.4	2.1	3.9	6.8	53.6
Highest daily rainfall (mm) ⁶	172.0	271.8	88.6	132.6	138.2	58.4	92.4	103.1	23.4	74.2	93.1	326.8	326.8
Mean daily sunshine (hrs) ⁷	Data not available												
Mean daily evaporation (mm)													
Mean 9 am rel. hum. (%) ⁶	74	78	74	75	74	73	71	69	68	68	69	72	72
Mean 3 pm rel. hum. (%) ⁶	65	67	63	64	62	59	55	54	56	59	61	64	61
Mean 9 am wind speed (km/hr) ⁶	18.6	18.1	20.9	21.7	20.4	19.7	18.1	18.4	17.8	18.3	18.6	18.7	19.1
Mean 3 pm wind speed (km/hr) ⁶	25.1	23.7	25.8	25.2	23.8	23.1	22.1	23.1	24.0	25.4	25.5	25.3	24.3
<i>Bowen Post Office – Lat: 20.02S, Long: 148.25E</i>													
Mean max temp (°C) ⁷	31.5	31.3	30.6	29.2	26.8	24.7	24.3	25.5	27.3	29.2	30.6	31.5	28.5
Mean min temp. ⁷	24.0	23.7	22.9	20.9	17.9	15.4	14.2	15.1	17.3	20.2	22.3	23.5	19.8
Mean Rainfall (mm) ⁸	246.9	241.5	160.6	64.0	39.8	36.6	23.7	17.6	16.2	23.1	36.2	103.4	1010.2
Mean no. days with rain >1mm ¹⁰	9.0	9.1	7.7	4.7	3.7	2.8	1.8	1.6	1.4	1.8	3.0	5.5	52.1
Highest daily rainfall (mm) ⁹	391.9	372.1	253.7	246.9	167.1	120.7	126.5	125.0	136.1	62.2	129.0	188.0	391.1

Parameter	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Ann.
Mean daily sunshine (Hrs)	No data available												
Mean daily evaporation (mm)													
Mean 9 am rel. hum. (%) ¹⁰	76	79	78	77	76	75	75	73	70	69	68	71	74
Mean 3 pm rel. hum (%) ¹⁰	69	71	69	67	65	62	61	58	60	61	62	65	64
Mean 9 am wind speed (km/hr) ¹¹	15.6	18.4	18.4	21.6	22.3	19.2	19.8	17.9	16.5	16.1	15.5	16.2	18.1
Mean 3 pm wind speed (km/hr) ¹¹	21.6	23.1	21.2	21.9	22.3	19.9	21.1	21.1	22.8	24.5	23.4	24.1	22.2
<i>Burdekin Shire Council – Lat: 19.58S, Long: 147.41</i>													
Mean max temp (°C) ¹²	32.2	31.6	31.1	29.9	27.9	25.7	25.2	26.5	28.3	30.1	31.4	32.4	29.4
Mean min temp. ¹³	22.4	22.2	21.1	18.8	15.6	13.0	11.6	12.8	15.3	18.2	20.4	21.8	17.8
Mean rainfall (mm) ¹³	254.8	262.9	175.2	60.3	36.2	30.0	17.7	14.7	19.5	22.8	42.5	116.8	1053.4
Mean no. days with rain >1mm ¹⁴	9.5	9.7	7.5	3.9	3.1	2.5	1.8	1.5	1.5	2.1	3.5	5.9	52.5
Highest daily rainfall (mm) ¹⁴	266.7	478.3	268.0	228.6	269.5	159.3	135.9	85.9	370.3	116.8	189.7	321.8	478.3
Mean daily sunshine (hrs)	No data available												
Mean daily evaporation (mm)													
Mean 9 am rel. hum. (%) ¹⁵	72	75	73	70	69	69	68	66	63	62	62	65	68



Parameter	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Ann.
Mean 3 pm rel. hum. (%)	No data available												
Mean 9 am wind speed (km/hr) ¹⁵	8.1	7.4	7.9	7.9	7.8	7.6	7.8	8.2	9.0	9.6	9.3	8.6	8.3
Mean 3 pm wind speed (km/hr)	No data available												

Note 1: Data from 1951–2008, Note 2: Data from 1967-2000, Note 3: Data from 1994–2008, Note 4: Data from 1955–2008, Note 5: Data from 1988–2008, Note 6: Data from 1987–2008, Note 7: 1907-1987, Note 8: Data from 1870–1987, Note 9: Data from 1872-1987, Note 10: Data from 1938–1987, Note 11: Data from 1969–1987, Note 12: Data from 1892–1986, Note 13: Data from 1886–2008, Note 14: Data from 1887–2008, Note 15: Data from 1892-1986,

Historical flood information

Date	Location (s)	Details
January 1970	Don and Burdekin Rivers	Cyclone Ada resulted in major flooding in the Don River at Bowen on 19 and 20 January. Only moderate flooding occurred in the lower Burdekin River.
March 1971	Burdekin River	Minor flooding in the Burdekin River tributaries.
December 1971	Burdekin River	Ex-cyclone Althea evolved into a rain depression, resulting in heavy rainfalls. Minor to major flooding in the Burdekin River and its upper tributaries.
February 1974	Burdekin River	The majority of the inland streams were in major flood including the Burdekin River.
December 1974	Burdekin River	Minor local flooding in the upper Burdekin River.
February 1978	Burdekin River	Heavy flood rains in late January and early February brought moderate to major flooding to many streams within the Burdekin River basin.
March 1979	Burdekin River	Major flooding in the lower Burdekin River for about 12 to 17 hours. It was during this period when a (then) recently completed river levee on the Burdekin River was damaged.
January 1980	Don and Burdekin Rivers	Ex-cyclone Paul caused one of the highest floods in the Don River catchment, resulting in the river changing its course in the lower reach and washing away two homes. The Burdekin River also reached flood levels from heavy rains during this period.
January 1981	Burdekin River	Flooding in the Burdekin River occurred on 16 and 17 January.
December 1990	Don and Burdekin Rivers	Major flooding occurred on 27 December in the Don River, with minor flooding in the Lower Burdekin River due to the south-west movement of Cyclone 'Joy' and its eventual land fall in the Ayr region.
February 1991	Bowen and Burdekin Rivers	During the first few days of February, very heavy rainfall occurred across the Bowen River and lower Burdekin River catchment downstream of the Burdekin Dam. Extensive flooding of the Home Hill and Ayr districts occurred. Major flooding developed in the upper parts of the Burdekin River following rainfall of approximately 200 mm between 18 to 20 February. River rises and record flooding developed in the Burdekin River upstream of the Dam.
January 1996	Don River	Later in the month tropical Cyclone 'Celeste' caused minor flooding on the Don River around Bowen.
February 1997	Don River	Minor flooding of the Don River on 24 and 25 February. Ex-cyclone Ita resulted in some heavy rainfalls in the headwaters of the Bowen River which resulted in some minor to moderate flooding in the Burdekin River below Burdekin Falls Dam.
January 1998	Burdekin River	Very heavy rainfall in the upper Burdekin catchment caused rapid river rises and major flooding upstream of Burdekin Dam on 11 January.

Date	Location (s)	Details
August 1998	Don River	Heavy rain on 28 and 29 August resulted in rapid river rises in the Don River upstream of Bowen. Flood levels peaked at Bowen Pump Station late on the Saturday night at 3.25 m with minor flooding occurring along the Don River.
February 2000	Don and Burdekin River	Moderate flooding occurred on three separate occasions in the Don River during February. Minor flooding in the lower reaches of the Burdekin River.
December 2000	Don River	Moderate flooding in the lower reaches of the Don River at Bowen.
January 2001	Burdekin River	Heavy rainfall commencing towards the end of December resulted in river rises and minor flooding in the lower reaches of the Burdekin River during the first few days of January.
February 2002	Don and Burdekin Rivers	Moderate flood in the lower reaches of the Don River. Major flooding in the upper Burdekin River during the period 13 to 18 February, minor flooding thereafter until 21 February.
January 2005	Don and Burdekin Rivers	Minor to moderate flooding in the upper reaches of the Don River on 23 January. Minor to moderate flooding in the upper Burdekin River on 25 January.
April 2006	Don River	Very heavy rainfall occurred on the afternoon of 7 April in the Don River with a total up to 150 mm recorded in a few hours. As a result, river levels in the lower reaches of the Don River rose sharply causing moderate flooding.
January 2007	Don River	Flooding occurred in the lower reaches of the Don River downstream following a monsoon depression between 21 and 25 January.
February 2007	Don and Burdekin Rivers	Major flooding in the upper reaches of the Don River on 1 February. Widespread heavy rainfall across the upper Burdekin Basin and moderate rainfall elsewhere in early February resulted in major flooding quickly developing above the Burdekin Falls Dam.