

Appendix 17

Climate Data

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1. INTRODUCTION

This appendix presents climate data for the Water Resource Assessment and Water Management Plan for the Bickham Coal Mine project.

Information on a variety of features of the local climate is required for the assessment and design of a range of water management facilities required for the Bickham Coal Mine:

- long term rainfall and evaporation for the assessment of the performance of the mine water management system and the overall site water balance (refer **Appendix 19**);
- medium term rainfall on consecutive days (2 – 20 days) for the design of sedimentation ponds;
- short duration (10 minute to 3 hour) rainfall intensity for the design of spillways and water diversion and conveyance structures.

2. LONG TERM CLIMATE DATA

Three Bureau of Meteorology rainfall recording stations are located near the development site. The location of these stations is shown on **Figure 2.1**. Of the three stations, Wingen (Murrulla), located 3 km south-west of the western end of the mine pit, is the closest to the project site. In addition, incomplete daily rainfall data for the Bickham Project site is available for the period 2003 to 2008.

The nearest evaporation data is from the Scone research Station, which is located approximately 25 km south of the site.

Daily rainfall and evaporation data for these stations was obtained from the Bureau of Meteorology for the period of record and statistics for the stations determined. **Table 2.1** summarises the 10th percentile, median and 90th percentile annual statistics for these stations. The 10th percentile annual rainfall represents the annual rainfall that would occur in a very dry year (1 in 10 chance of occurrence), while the 90th percentile rainfall represents a very wet year (1 in 10 chance of occurrence). Monthly rainfall data for Wingen (Murrulla) is included in Annexure A17

Table 2.1
Summary of Annual Climate Data

Stn No	Station Name	Period of Record	10%ile	Median	Average	90%ile	Max Daily
Rainfall (mm)							
61089	Scone	1950 - 2008	413	647	647	826	163
61079	Wingen (Murrulla)	1877 - 2008	464	712	724	944	144
61051	Murrurundi	1871 - 2008	528	810	813	1,062	227
N/A	Bickham Mine	2003 - 2008	532	616	595	637	80
Evaporation (mm)							
61089	Scone	1965 - 2008	1,415	1,586	1591	1,806	25.2

Rainfall at Murrurundi is higher than at the other stations, possibly due to the orographic effects of the Liverpool Range. The rainfall at the mine site appears lower than the other stations, however, this is due to the limited period of record being for a very dry period.

The “*Climatic Atlas of Australia: Evapotranspiration*” indicates that the potential evapotranspiration at Scone is about 5% higher than at the site. On this basis, the average annual pan evaporation at the site is estimated to be about 1,510 mm/year.

Table 2.1 shows that annual evaporation exceeds the annual rainfall at the site.

Monthly rainfall and evaporation statistics are presented in **Table 2.2**.

Table 2.2
Monthly Rainfall (Wingen/Murrulla) and Evaporation (Scone) Statistics

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)												
10%ile	13	7	6	5	9	12	12	12	12	15	14	21
50%ile	71	56	46	38	34	45	45	41	42	51	60	63
90%ile	171	160	145	103	107	111	108	99	95	122	120	139
Mean	83	77	63	48	46	53	50	48	50	61	65	76
Evaporation (mm)												
10%ile	172	137	124	84	59	41	46	67	93	126	142	169
50%ile	214	173	153	106	69	50	59	86	112	153	173	220
90%ile	249	211	196	138	88	60	69	102	141	209	220	264
Mean	215	174	154	107	72	50	59	86	116	159	180	219
Daily Avg	6.9	6.2	5.0	3.6	2.3	1.7	1.9	2.8	3.9	5.1	6.0	7.1

For many mine sites, shortage or excess of water occurs as a result of an extended sequence of wet or dry years rather than a single abnormal year. **Table 2.3** summarises the sequences of above and below average rainfall for consecutive years (up to 25 years) based on the long term rainfall records at Wingen.

The data in **Table 2.3** shows that in the driest sequence of five years on record an average of 523 mm/year occurred, which is about 70% of the long term average. Similarly, there is a 1 in 10 (10%) chance of a five year sequence occurring with an average of only 607 mm/year, or 85% of the long term average. At the wetter end of the scale, there is a 1 in 10 chance of having a sequence of five wet years where the average rainfall is 860 mm/year or 20% above the long term average. The wettest recorded sequence of five years averaged 973 mm/year or 35% above the long term average.

Table 2.3
Average Annual Rainfall at Murrulla for Sequences of Wet and Dry Years

Sequence	Average Annual Rainfall (mm) for Specified Number of Consecutive Years						
	1	2	3	4	5	10	25
Minimum Sequence	313	423	488	504	523	583	619
1 in 10 Dry Sequence	472	549	569	598	610	621	647
Average Sequence	724	724	724	724	724	725	717
Median Sequence	713	716	721	713	711	735	724
1 in 10 Wet Sequence	957	950	887	874	865	831	776
Maximum Sequence	1,295	1,232	1,073	1,008	973	880	797

3. MEDIUM TERM RAINFALL DATA

Medium term rainfall data (2 – 20 days) that are applicable for the design of some types of sedimentation basins are set out in Chapter 6 of *"Managing Urban Stormwater: Soils & Construction"* (Landcom, 2004). The data for the nearest relevant location (Scone) are summarised in **Table 3.1**.

Table 3.1
Rainfall Depths over Consecutive Days of Rainfall at Scone

Percentile Probability	Rainfall Depths (mm) over Consecutive Days			
	2 days	5 days	10 days	20 days
75%	12.4	19.0	28.7	50.6
80%	15.3	22.6	33.9	57.9
85%	19.3	27.7	41.2	67.7
90%	25.0	35.9	52.0	82.8
95%	37.8	51.3	70.6	109.2

4. RAINFALL INTENSITY

Design rainfall intensity characteristics for the site have been derived using the data from the Bureau of Meteorology CIDRS database. This data has been converted to estimates of short duration rainfall intensity and rainfall erosivity using the standard procedures contained in the RAINER program (Soil Conservation Service, 1993). The resulting rainfall intensity estimates for various average recurrence intervals (ARI expressed in years) at the site are set out in **Table 4.1**.

Table 4.1
Rainfall Intensity (mm/h) for Various Storm Durations and ARI

Storm Duration	Average Recurrence Interval (years)				
	5	10	20	50	100
10 min	82	94	110	132	151
20 min	58	66	77	93	105
30min	47	53	61	73	83
1 hour	31	35	40	47	53
3 hours	15	17	20	24	27
6 hours	10	11	13	16	18
12 hours	6.3	7.2	8.4	10	11
24 hours	4.1	4.7	5.4	6.5	7.4
48 hours	2.6	2.9	3.4	4.1	4.7
72 hours	1.9	2.2	2.6	3.1	3.5

The RAINER program also provides the following estimates of rainfall erosivity:

- annual average R factor 1,450
- 1:10 year storm erosivity 970.

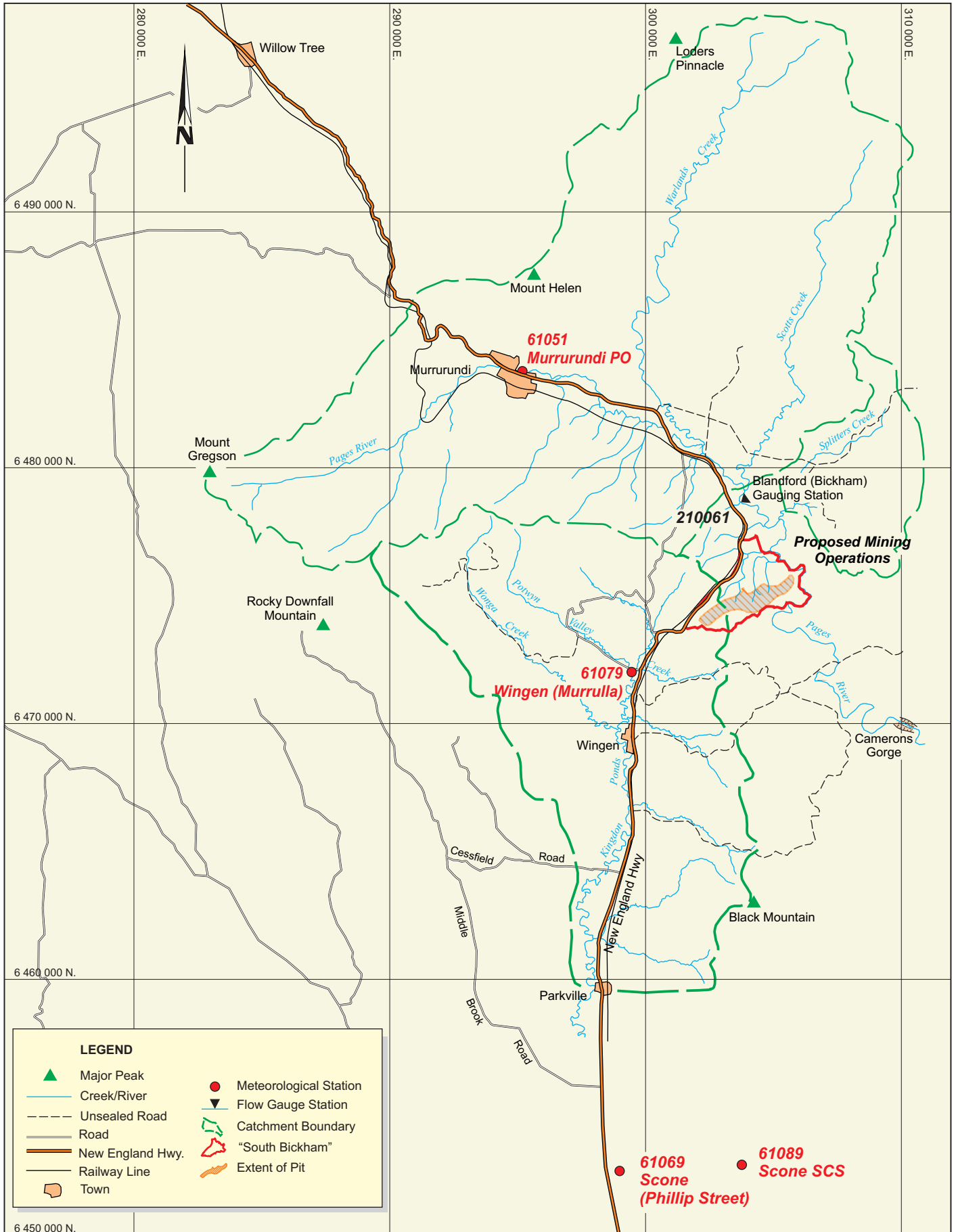
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Landcom (2004). *Managing Urban Stormwater: Soils & Construction*".

Soil Conservation Service (1993), RAINER Program.




Bickham Coal Mine WRA & WMP
 Appendix 17 - Climate Data
LOCATION OF CLIMATE STATIONS
 Date: March 2009 | Assignment: 21667 | **Figure 2.1**

Annexure 17A

Monthly Rainfall Data: Wingen (Murulla)

Wingen (Murrulla) Rainfall

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1877					38.9	13.2	75.7	21.4	37.8	32.2	13.6	42.6	
1878	9.6	162.6	82.3	23.1	23.9	67.8	82.7	52.9	95.3	48.6	79.7	43.8	772
1879	11.4	141.1	71.7	77.7	124.3	51.4	53.6	129.2	56.2	28.9	91.0	87.8	924
1880	37.8	9.6	54.8	39.2	18.6	25.4	7.1	9.8	159.6	50.8	28.3	50.3	491
1881	28.5	108.3	30.2	2.0	22.2	33.0	46.8	122.6	103.2	82.8	59.4	6.1	645
1882	8.6	53.4	7.9	60.5	35.8	60.4	52.9	40.5	11.9	91.4	125.2	56.3	605
1883	28.2	121.8	8.4	108.5	101.8	17.2	9.6	99.3	69.9	77.2	42.9	2.5	687
1884	10.4	31.0	16.5	99.9	35.6	80.6	72.5	14.3	74.2	42.2	67.8	35.6	581
1885	75.5	55.9	100.8	45.7	33.7	89.8	15.0	4.6	41.1	32.8	28.0	77.5	600
1886	30.8	9.6	8.6	91.7	124.4	47.4	48.7	141.2	40.6	93.0	112.0	46.0	794
1887	177.3	125.0	123.9	132.9	24.3	53.6	99.8	150.4	27.6	42.3	94.1	215.8	1,267
1888	20.3	82.7	11.4	12.7	11.2	15.8	21.8	2.0	48.7	45.5	7.3	33.3	313
1889	66.9	85.1	39.5	116.7	126.2	45.1	87.7	45.4	27.8	91.0	118.9	83.0	933
1890	137.9	244.3	163.9	26.2	59.7	87.3	109.0	22.4	60.8	73.9	64.6	67.4	1,117
1891	186.8	28.4	113.1	24.1	17.0	190.9	46.9	54.1	114.8	26.4	88.6	84.1	975
1892	84.4	69.1	86.5	143.3	34.1	18.6	56.0	50.5	127.8	88.5	83.1	88.8	931
1893	91.1	125.5	117.1	47.6	39.6	56.6	69.2	111.6	17.3	120.4	81.4	30.2	908
1894	79.5	28.5	220.8	36.6	9.6	37.9	22.9	19.9	25.0	77.4	19.5	54.2	632
1895	166.1	106.8	9.4	2.8	17.7	19.3	13.0	18.1	51.3	20.8	109.1	179.1	714
1896	39.3	133.2	56.5	13.4	79.0	48.8	22.4	46.9	9.9	40.8	62.7	17.7	571
1897	69.3	10.1	4.9	27.9	39.3	77.8	108.2	29.8	40.9	42.3	8.9	132.1	592
1898	196.1	152.4	0.5	8.4	89.4	63.8	49.3	28.4	45.8	24.1	26.2	27.5	712
1899	50.0	3.6	64.5	99.5	23.2	64.9	24.2	200.1	57.9	58.4	42.1	24.4	713
1900	41.9	17.3	63.0	51.9	73.1	142.6	111.5	20.6	19.0	11.0	40.4	106.0	698
1901	38.6	3.0	67.2	58.2	12.0	61.9	17.6	75.3	9.1	90.1	46.7	8.9	489
1902	90.0	19.0	46.0	8.4	7.4	22.3	18.5	56.4	48.0	93.7	36.6	99.0	545
1903	0.8	0.8	55.5	56.2	49.8	19.0	38.5	80.0	177.4	73.9	70.2	96.5	719
1904	10.2	172.0	67.8	72.4	5.8	24.4	171.9	33.3	19.2	50.3	16.8	39.5	684
1905	46.0	20.3	62.8	87.0	32.7	40.1	24.6	35.1	7.1	39.3	45.4	2.8	443
1906	10.2	26.4	42.2	21.9	28.8	19.3	23.1	87.2	54.2	49.3	77.1	38.3	478
1907	75.9	6.6	114.8	28.7	42.4	78.7	5.6	38.4	27.4	10.5	152.9	104.9	687
1908	26.9	250.0	144.8	50.8	31.8	33.6	52.2	70.9	72.0	35.6	50.3	24.9	844
1909	21.8	119.2	5.9	30.5	21.5	70.6	13.1	114.2	72.9	40.8	83.5	122.5	717
1910	249.0	3.8	97.4	9.2	34.1	92.5	41.2	20.1	9.5	39.1	12.0	112.6	721
1911	206.1	64.1	92.2	37.1	26.3	23.7	61.7	87.1	54.3	21.8	126.8	62.2	863
1912	44.2	61.9	19.1	28.7	53.3	51.2	130.9	25.2	7.1	45.5	10.9	97.5	576
1913	42.4	155.5	73.4	118.3	184.1	121.2	19.9	14.2	44.2	55.3	29.7	49.2	907
1914	70.6	35.3	111.0	40.6	39.9	81.1	28.9	8.2	28.9	42.4	106.3	92.9	686
1915	33.8	22.9	40.9	15.3	77.1	44.9	84.9	28.4	36.8	31.2	5.6	134.8	557
1916	38.5	142.3	32.7	84.2	32.8	94.6	47.8	52.0	24.2	66.5	131.8	209.4	957
1917	95.3	29.5	13.7	22.3	23.7	44.5	25.7	51.3	158.5	64.3	131.3	134.5	795
1918	119.9	39.4	9.1	35.5	12.2	0.0	50.4	91.2	22.6	13.8	15.5	9.2	419
1919	74.6	29.8	35.3	32.6	50.0	6.8	24.7	11.6	28.7	58.2	13.7	61.2	427
1920	129.7	79.6	23.0	5.9	44.2	124.5	108.6	59.0	21.8	13.7	50.3	198.5	859
1921	43.8	32.6	152.2	152.5	69.8	66.6	128.3	22.3	33.7	58.2	66.6	100.4	927
1922	67.2	36.9	4.3	19.3	0.8	6.4	108.4	28.2	31.5	50.9	14.2	117.6	486
1923	24.2	6.3	1.8	5.9	1.3	102.9	54.5	36.9	67.6	28.4	44.7	57.5	432

Wingen (Murrulla) Rainfall

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1924	81.9	115.1	28.7	65.8	19.6	9.6	44.9	44.9	87.3	50.2	156.6	60.0	765
1925	65.6	40.7	41.4	0.0	27.3	30.0	25.1	30.5	11.7	15.4	44.1	27.0	359
1926	71.0	13.6	208.0	101.0	74.9	25.3	51.6	21.9	53.4	17.7	8.6	179.7	827
1927	109.8	4.9	26.4	120.3	14.7	12.2	10.4	21.8	18.0	64.1	132.6	65.3	601
1928	117.0	123.6	154.0	38.3	12.5	148.7	95.1	3.3	11.9	62.1	32.5	30.5	830
1929	28.4	97.8	26.6	59.2	13.0	11.0	25.2	61.1	150.1	82.7	53.7	26.2	635
1930	47.3	15.3	80.7	15.3	14.8	146.0	50.8	27.9	15.8	97.1	35.4	19.8	566
1931	48.8	30.4	81.1	102.8	109.8	59.9	73.7	30.1	24.6	25.3	41.9	79.9	708
1932	12.7	44.5	147.9	43.7	17.2	12.4	53.1	40.9	145.5	44.8	42.3	54.7	660
1933	80.5	34.3	29.0	62.1	30.2	41.4	72.1	2.0	83.0	127.8	105.8	105.4	774
1934	47.3	138.0	0.0	39.2	3.6	31.0	79.2	60.1	92.6	85.5	61.1	114.0	752
1935	72.2	40.1	37.9	21.4	16.8	7.0	52.6	12.1	55.3	53.6	5.8	35.3	410
1936	72.2	79.0	143.4	45.7	22.1	16.7	70.1	44.9	29.8	17.4	0.6	89.8	632
1937	99.0	66.0	59.2	16.2	14.9	72.5	33.1	54.2	11.5	41.4	37.4	47.3	553
1938	53.3	33.9	7.6	68.3	67.1	32.2	31.0	50.8	15.1	60.6	70.1	19.6	510
1939	75.6	1.8	184.8	32.4	3.0	21.2	17.5	32.4	27.6	46.3	58.4	44.3	545
1940	7.1	4.3	42.1	67.4	6.6	6.9	0.0	28.7	44.9	13.6	71.7	116.1	409
1941	160.1	18.8	107.6	13.7	30.2	56.1	24.4	27.4	42.2	94.9	12.5	8.1	596
1942	36.1	54.6	136.1	0.0	19.3	67.3	168.8	15.9	35.8	147.8	111.8	22.3	816
1943	141.1	34.3	3.8	39.1	66.9	39.9	34.3	68.2	67.6	33.3	102.3	93.9	725
1944	109.9	79.0	31.2	29.2	131.3	6.4	60.5	90.4	36.5	8.5	21.0	27.7	632
1945	108.6	126.2	48.0	54.1	62.3	132.0	58.4	58.1	0.0	55.7	68.8	48.0	820
1946	60.4	0.0	43.7	130.7	22.6	58.1	7.9	0.0	25.4	16.0	56.6	50.8	472
1947	16.2	109.8	57.1	43.7	37.1	40.4	47.8	29.7	73.7	77.9	63.8	216.6	814
1948	75.4	68.3	137.9	32.8	31.2	86.4	15.8	24.7	93.3	29.0	18.2	142.3	755
1949	126.1	180.4	53.1	84.4	22.0	79.4	95.4	21.8	196.2	137.3	102.1	71.2	1,169
1950	121.7	177.4	28.5	201.0	59.1	222.3	136.7	40.7	20.8	125.8	142.2	19.2	1,295
1951	162.8	43.0	46.1	18.7	9.8	142.1	51.8	46.4	21.4	29.4	27.2	44.9	644
1952	34.1	89.1	43.6	61.9	58.0	61.5	39.9	149.5	21.1	80.6	23.7	92.7	756
1953	78.9	86.3	35.6	36.8	146.2	4.1	33.0	79.2	20.1	43.1	46.6	25.4	635
1954	222.6	188.1	1.5	9.5	1.0	34.2	11.7	28.7	32.9	163.7	85.6	29.3	809
1955	111.0	449.4	14.0	50.3	61.0	24.9	22.2	47.1	31.5	114.7	113.4	52.6	1,092
1956	91.6	184.8	89.1	46.9	92.5	80.0	60.7	38.8	17.6	59.4	26.9	45.7	834
1957	55.6	127.0	21.8	42.1	0.0	24.6	26.9	43.3	10.9	3.4	12.2	62.5	430
1958	140.6	97.7	38.6	35.4	52.6	47.0	10.9	41.7	114.0	96.8	38.6	120.9	835
1959	73.9	141.5	134.3	48.8	14.7	49.0	39.8	44.4	35.2	139.1	74.4	119.0	914
1960	43.4	59.0	17.9	30.1	43.9	20.4	51.6	32.9	59.3	80.7	56.4	142.6	638
1961	47.3	55.3	92.7	28.2	9.8	50.6	31.6	76.0	7.4	38.9	151.8	137.0	727
1962	141.9	116.4	5.2	85.4	133.7	3.1	39.4	51.3	37.0	138.2	23.6	114.9	890
1963	235.6	57.0	149.5	48.3	100.3	47.0	32.7	104.1	42.2	45.0	71.3	73.8	1,007
1964	60.2	6.4	75.0	146.5	50.0	111.1	43.8	11.5	63.5	59.8	8.6	23.1	660
1965	30.8	3.8	3.8	33.2	3.0	24.4	32.9	25.4	29.7	67.1	28.9	85.4	368
1966	0.0	18.1	57.7	7.2	28.7	52.1	8.7	82.8	47.4	121.6	100.9	73.8	599
1967	55.4	31.1	157.0	28.4	36.4	62.0	14.2	62.0	61.4	160.6	38.3	63.0	770
1968	265.5	31.0	46.8	9.7	183.5	12.0	35.8	110.8	62.1	41.4	23.1	76.7	898
1969	33.9	113.8	46.8	49.3	62.8	78.7	112.2	64.6	61.8	117.9	81.7	56.4	880
1970	116.9	74.0	27.7	32.1	19.4	21.6	2.3	27.8	96.6	33.9	81.6	208.3	742
1971	203.8	172.6	4.8	4.8	30.7	15.9	43.8	51.7	57.9	9.9	44.2	129.7	770

Wingen (Murrulla) Rainfall

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1972	142.3	27.1	47.2	55.2	29.6	28.7	3.8	46.4	37.9	161.4	101.2	25.1	706
1973	51.7	141.3	30.5	7.7	19.8	56.0	30.9	64.7	46.6	89.5	150.3	132.6	822
1974	204.8	17.8	14.6	78.8	90.6	37.8	24.2	36.8	25.6	65.2	78.6	13.4	688
1975	64.4	170.0	38.8	8.8	6.8	114.5	26.1	33.2	78.5	62.0	20.4	53.4	677
1976	310.4	123.4	126.0	15.4	9.0	87.0	72.2	19.1	98.8	67.2	51.6	37.8	1,018
1977	121.8	116.2	171.2	49.0	195.0	68.4	4.0	36.4	40.6	12.2	28.8	22.2	866
1978	170.6	29.4	214.6	35.6	84.0	135.7	48.0	14.6	75.5	41.4	83.8	129.2	1,062
1979	31.6	8.6	85.6	28.6	119.8	76.0	12.4	20.6	67.0	58.2	65.8	14.8	589
1980	59.2	9.6	45.0	2.4	33.8	65.8	51.9	17.6	4.0	55.0	14.8	52.3	411
1981	10.4	159.9	2.4	51.1	64.4	70.8	86.6	19.2	28.0	98.7	59.2	58.0	709
1982	37.3	62.0	134.2	0.0	10.4	4.4	22.0	0.0	43.6	29.8	15.9	30.6	390
1983	92.6	34.8	31.0	102.2	106.8	26.9	54.8	21.6	56.0	63.2	85.0	146.4	821
1984	246.6	97.4	40.2	43.2	18.4	24.6	110.5	40.8	53.2	36.6	136.2	43.2	891
1985	11.2	83.5	69.2	48.0	35.8	40.8	19.8	81.4	15.6	139.2	28.4	61.5	634
1986	68.0	5.0	4.2	5.2	39.6	10.4	117.0	113.0	56.7	46.6	90.6	22.4	579
1987	143.0	7.2	119.2	4.6	48.8	23.6	23.0	119.9	19.5	97.0	99.8	98.1	804
1988	84.2	53.2	8.4	100.2	55.8	30.9	57.2	77.0	73.6	5.2	84.0	72.6	702
1989	35.8	30.0	176.0	138.1	39.4	103.5	67.2	17.0	10.0	44.2	111.4	60.6	833
1990	99.3	268.7	63.2	107.8	50.9	61.8	83.2	92.0	81.2	47.0	3.0	78.6	1,037
1991	166.7	10.8	39.5	14.0	72.6	46.0	38.4	4.5	30.0	13.8	50.3	145.1	632
1992	20.6	359.0	17.4	31.4	18.4	34.2	17.6	47.6	46.0	39.0	81.4	173.9	887
1993	111.8	100.2	147.4	7.0	42.0	119.0	59.0	43.0	63.6	158.3	105.0	67.1	1,023
1994	8.2	51.4	42.6	53.4	0.0	19.4	33.0	13.8	3.0	31.2	161.2	75.4	493
1995	84.9	13.4	29.2	0.0	125.4	57.2	13.4	0.0	93.4	29.6	104.0	128.6	679
1996	171.6	32.6	10.0	5.5	62.0	29.4	61.9	90.8	43.6	60.2	50.4	140.3	758
1997	138.0	141.8	24.1	2.8	52.7	51.1	14.0	10.6	85.6	59.6	32.3	122.6	735
1998	99.1	79.2	0.8	101.8	105.9	154.7	268.3	98.8	120.9	134.8	73.1	50.4	1,288
1999	83.8	40.4	89.0	113.0	14.2	44.4	48.6	46.4	63.2	143.3	73.7	121.5	882
2000	18.5	17.0	123.3	78.8	64.3	20.8	46.7	87.8	13.0	69.0	342.9	56.2	938
2001	44.4	45.6	105.8	27.6	119.6	18.2	58.4	27.4	20.8	51.6	98.6	40.2	658
2002	21.5	63.2	37.2	4.9	22.7	41.6	1.9	19.9	55.8	3.4	18.1	139.1	429
2003	12.9	119.3	30.1	66.6	36.0	42.4	23.9	80.6	18.2	74.6	95.0	100.4	700
2004	106.4	129.6	92.1	13.4	19.5	10.2	59.8	49.2	54.8	37.4	74.3	112.7	759
2005	85.8	74.6	78.6	2.4	23.5	75.3	45.0	29.2	76.7	66.1	108.5	19.4	685
2006	77.8	73.0	11.4	72.6	1.2	28.9	46.9	9.3	36.0	14.0	61.0	86.8	519
10%ile	12.9	7.1	5.8	5.5	9.0	11.9	12.3	11.6	11.9	15.3	13.7	22.0	466
50%ile	70.8	56.5	46.1	37.7	34.1	45.0	45.0	40.6	42.2	51.3	60.2	62.8	712
90%ile	170.7	160.2	145.1	103.3	106.8	111.4	108.2	98.9	95.4	122.0	119.5	139.2	942
Mean	82.6	76.7	63.0	47.7	46.2	53.4	50.2	48.1	50.4	60.8	65.3	76.1	723