

BUREAU OF METEOROLOGY, AUSTRALIA



HYDROLOGY REPORT SERIES

HRS Report No. 3

**CATALOGUE OF SIGNIFICANT RAINFALL
OCCURRENCES OVER SOUTHEAST
AUSTRALIA**

Hydrology Unit
Melbourne
October 1995
(Reprinted September 1998)

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AUSTRALIA**



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J. MEIGHEN and M. R. KENNEDY

Hydrology Unit
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1. INTRODUCTION

The purpose of this report is to provide areal rainfall depths and maximum percentages of total rainfall depth at standard durations derived from data recorded in actual events over a wide range of areas and durations for use by design engineers and agricultural scientists.

This report is a collection of rainfall data recorded in significant rainfall events which have occurred over southeastern Australia. A catalogue of this type has not previously been available for Australia and this report is the first one to present rainstorm data for a large part of the continent. These data were originally processed for a project on the estimation of probable maximum precipitation over southeastern Australia (Kennedy et al., 1988). A more detailed description of the collection, correcting and analysis of the data is to be found in the report on the development of the Generalised Southeast Australia Method (GSAM) of probable maximum precipitation estimation (Bureau of Meteorology, 1996).

The data include a listing of all the rainstorms analysed; the mean rainfall depth over a number of standard areas within each rainstorm and the maximum percentages of total rainfall depth at standard durations for each area up to a duration of 96-hours. Further information relevant to the derivation of the maximum percentages of total rainfall is given in the Appendix.

The terms rainstorms and storms as used in this catalogue denote events selected purely on the significant amount and extent of the rainfall produced. They are not to be confused with the localised thunderstorms which may be significant because of high winds or local flooding.

2. SELECTION OF RAINSTORMS

Rainstorm dates were selected using several sources: reports by the Bureau of Meteorology and others on specific rainstorms and floods, Probable Maximum Precipitation (PMP) studies using the *in situ* or storm transposition methods, computerised searches of the daily rainfall archives for durations of 1 to 5 days and rainfall about the dates of some major floods were all examined. The most significant of the rainstorms detected were subjected to further analysis.

Details of the rainstorms selected are given in Table 1. The locations of the rainstorm centres are shown in Figure 1. The rainstorm durations ranged from 24 hours to 7 days although most had durations of 5 days or less. Some single events were significant at a number of durations and so these are listed separately for each duration. The total areas covered by the rainstorms varied from 10 000 km² to over 60 000 km². There are 110 rainstorms in this catalogue, most of which occurred along the east coast but a significant number occurred inland and over South Australia.

Key to Table 1.

Storm Name:

This is an 8 character code used to uniquely identify each event, especially within computer programs. It consists of 2 characters to represent the region, 1 numeral to represent the duration, 3 characters to represent the month and 2 numerals to represent the year.

Region:

The region name was chosen by the analyst. It refers to the region of the rainstorm, the biggest town within that region or the site of the highest rainfall observation during the rainstorm.

State:

The state of Australia over which most of the rain fell.

Storm Duration:

The storm duration is the number of days of accumulated rainfall analysed. Each 'day' being the 24 hours from 9:00 am to 9:00 am.

Date Ended:

The storm duration ended at 9:00 am on this date.

Storm Dew Point:

This is the surface dew point temperature observed within the rainstorm region and in the direction of moisture inflow just before any precipitation was observed. The value was derived by manual inspection of archival material which required considerable interpretation. These data were especially difficult to find for the earlier rainstorms.

Approximate Storm Centre:

Usually the latitude and longitude of the centre of the innermost isohyet of the rainstorm. For some multi-centred rainstorms this approximate centre is not the centre for which the temporal pattern was derived. This occurred where the temporal pattern was derived using the centre with the highest non-topographical rainfall component.

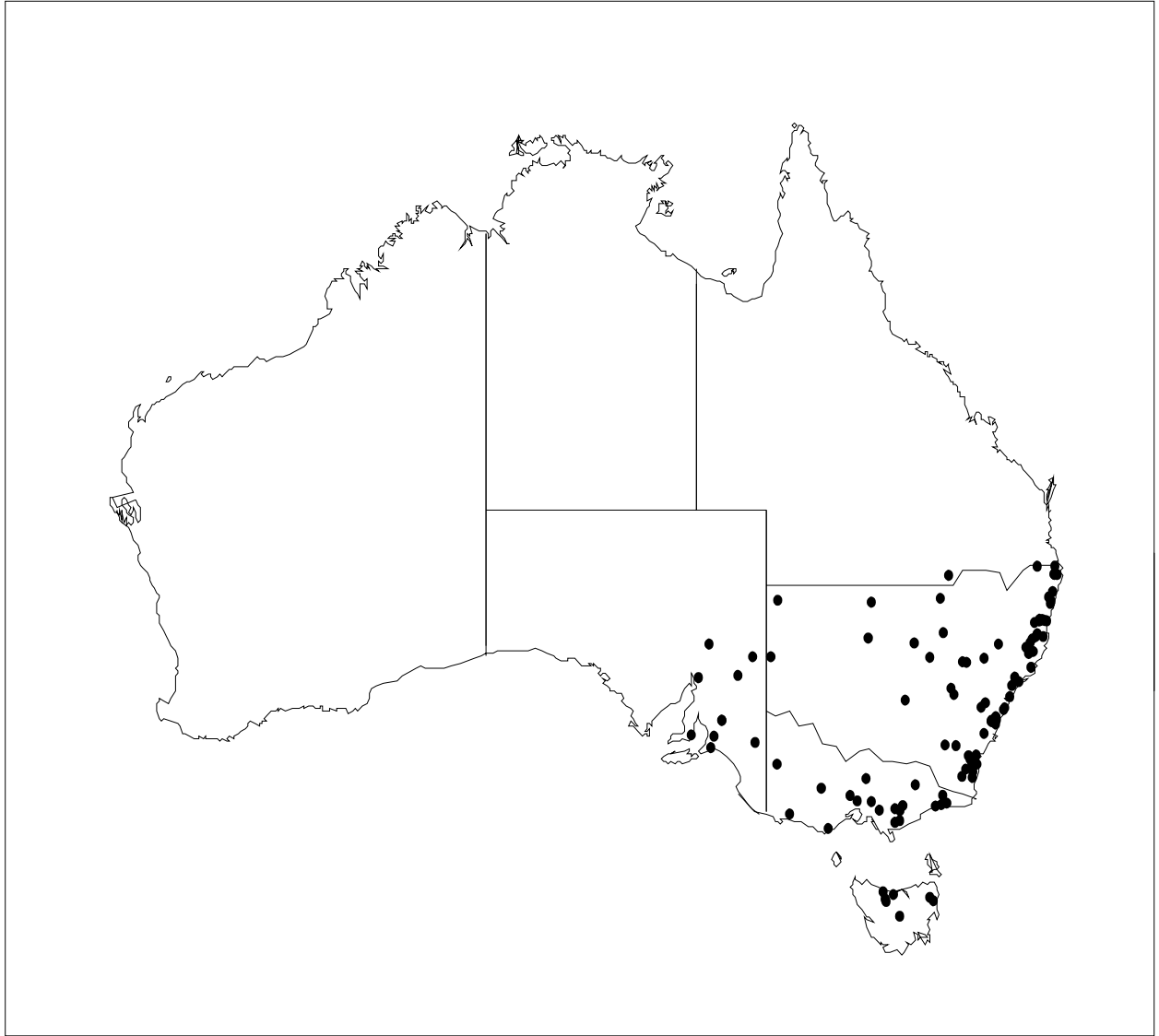


Figure 1. The Locations of the Rainstorm Centres

Table 1. Storm Name, Location, Duration, Date and Storm Dew Point.

Storm Name	Region	State	Storm Duration (days)	Date Ended	Storm Dew Point (°C)	Approximate Storm Centre	
						Lat. (°S)	Long. (°E)
TR1APR89	Truro	SA	1	2/ 4/1889	14.5	34.38	139.10
ST4APR89	Stirling	SA	4	17/ 4/1889	12.5	35.00	138.76
SY6MAY89	Sydney	NSW	6	29/ 5/1889	12.0	33.94	151.16
HA3MAR93	Hastings	NSW	3	10/ 3/1893	19.0	31.04	152.53
MP4MAR93	Morpeth	NSW	4	10/ 3/1893	19.0	32.65	151.64
BU5DEC93	Butcher's Ridge	VIC	5	31/12/1893	14.0	37.35	148.55
CO2FEB96	Cobar	NSW	2	12/ 2/1896	14.0	31.09	145.36
UL4FEB98	Ulladulla	NSW	4	15/ 2/1898	19.5	34.33	150.75
OR1MAR00	Orange	NSW	1	21/ 3/1900	19.0	33.09	148.91
WA7APR01	Warragul	VIC	7	26/ 4/1901	11.0	37.97	146.72
SY4JUL04	Sydney	NSW	4	12/ 7/1904	10.5	34.27	150.84
WV1MAR10	Western	VIC	1	6/ 3/1910	15.5	36.11	141.46
CN1JAN11	Coonamble	NSW	1	12/ 1/1911	18.9	30.88	148.58
WO5MAR14	Wollongong	NSW	5	24/ 3/1914	18.0	34.37	150.64
ED3FEB19	Eden	NSW	3	27/ 2/1919	16.5	36.64	149.82
WI3MAR21	Wilmington	SA	3	1/ 3/1921	17.8	32.67	138.09
MA2MAY21	Maclean	NSW	2	16/ 5/1921	17.0	29.46	153.09
MA5MAY21	Maclean	NSW	5	16/ 5/1921	17.0	29.72	153.16
KI5JUL22	Kiama	NSW	5	29/ 7/1922	10.0	35.92	149.73
BU1MAY25	Burrinjuck	NSW	1	27/ 5/1925	10.5	35.38	149.12
BU4MAY25	Burrinjuck	NSW	4	28/ 5/1925	10.5	35.78	149.66
KI5MAY25	Kiama	NSW	5	28/ 5/1925	13.0	35.93	149.80
AD3MAR26	Alndale	NSW	3	25/ 3/1926	19.4	31.90	150.33
UN2FEB28	Ungarie	NSW	2	18/ 2/1928	21.0	33.56	146.95
HI6FEB29	Hickey's Creek	NSW	6	11/ 2/1929	19.0	30.92	152.60
MT2APR29	Mathinna	TAS	2	5/ 4/1929	13.5	41.19	146.00
HA1JUN30	Hastings	NSW	1	19/ 6/1930	12.8	31.46	152.12
HA5JUN30	Hastings	NSW	5	20/ 6/1930	12.8	31.71	152.24
WD2DEC30	Woodend	VIC	2	7/12/1930	18.5	37.36	144.59
TH1FEB31	Tweed Heads	NSW	1	6/ 2/1931	22.0	28.23	153.35
HA5APR31	Hastings	NSW	5	25/ 4/1931	15.0	32.26	152.34
BH1NOV33	Broken Hill	NSW	1	29/11/1933	17.1	31.84	141.19
AV2DEC33	Avoca	VIC	2	1/12/1933	18.5	37.07	143.35
BE5JAN34	Bega	NSW	5	9/ 1/1934	18.0	36.13	149.81
WA5DEC34	Warragul	VIC	5	3/12/1934	14.0	37.94	145.84

Table 1. (Cont.)

Storm Name	Region	State	Storm Duration (days)	Date Ended	Storm Dew Point (°C)	Approximate Storm Centre	
						Lat. (°S)	Long. (°E)
LA2DEC35	Lakes Entrance	VIC	2	27/12/1935	11.5	37.78	148.24
ME4OCT37	Melbourne	VIC	4	19/10/1937	11.0	37.60	145.50
TA6MAR39	Tallangatta	VIC	6	1/ 3/1939	15.8	36.93	147.38
FP3JAN41	Fleurieu Pen.	SA	3	26/ 1/1941	19.5	35.45	138.62
WO2MAY43	Wollongong	NSW	2	17/ 5/1943	10.5	34.51	150.82
WO5MAY43	Wollongong	NSW	5	20/ 5/1943	10.5	34.89	150.32
UL3APR45	Ulladulla	NSW	3	10/ 4/1945	10.0	35.74	149.99
YP2FEB46	Yorke	SA	2	18/ 2/1946	13.2	34.95	137.78
MO1FEB46	Moina	TAS	1	19/ 2/1946	15.3	41.48	146.09
PO3MAR46	Portland	VIC	3	18/ 3/1946	13.0	38.09	142.00
GF3MAR46	Grafton	NSW	3	26/ 3/1946	19.0	29.62	153.19
NA4APR46	Narara	NSW	4	19/ 4/1946	15.0	33.43	151.43
TH1JAN47	Tweed Heads	NSW	1	24/ 1/1947	20.0	28.24	152.60
RA5JUN49	Raymond	NSW	5	19/ 6/1949	13.5	32.79	151.66
HA5AUG49	Hastings	NSW	5	29/ 8/1949	14.0	31.14	152.38
WP2FEB50	Wilpena Pound	SA	2	3/ 2/1950	21.9	31.33	138.55
AR1MAR50	Arkaroola	SA	1	17/ 3/1950	18.5	31.84	140.41
RW4MAR50	Rushworth	VIC	4	20/ 3/1950	16.8	36.68	145.27
CA7MAR50	Canberra	ACT	7	23/ 3/1950	18.6	35.35	148.65
DO1JUN50	Dorrigo	NSW	1	24/ 6/1950	14.0	30.40	152.68
DO5JUN50	Dorrigo	NSW	5	26/ 6/1950	14.0	30.40	152.72
WA3FEB51	Warragul	VIC	3	20/ 2/1951	15.5	38.43	146.51
BE5JUN52	Bega	NSW	5	18/ 6/1952	11.5	36.31	149.54
VI5JUN52	Victoria	VIC	5	19/ 6/1952	10.5	38.36	146.71
HA2FEB54	Hastings	NSW	2	21/ 2/1954	21.5	30.35	152.70
TH1FEB54	Tweed Heads	NSW	1	21/ 2/1954	21.5	28.56	153.34
DO5FEB54	Dorrigo	NSW	5	22/ 2/1954	22.0	30.39	152.67
DUIFEB55	Dunedoo	NSW	1	24/ 2/1955	22.5	32.06	149.58
DU2FEB55	Dunedoo	NSW	2	25/ 2/1955	22.5	32.03	149.40
DU3FEB55	Dunedoo	NSW	3	26/ 2/1955	22.5	31.33	150.94
DU4FEB55	Dunedoo	NSW	4	26/ 2/1955	22.5	31.86	148.00
DO1JAN59	Dorrigo	NSW	1	22/ 1/1959	20.0	30.36	152.83
DO5JAN59	Dorrigo	NSW	5	24/ 1/1959	20.0	30.48	152.48
BA1APR59	Bathurst	NSW	1	2/ 4/1959	20.5	33.34	149.03
SE2APR60	South Esk	TAS	2	23/ 4/1960	10.0	42.16	146.71

Table 1. (Cont.)

Storm Name	Region	State	Storm Duration (days)	Date Ended	Storm Dew Point (°C)	Approximate Storm Centre	
						Lat. (°S)	Long. (°E)
WO3NOV61	Wollongong	NSW	3	20/11/1961	16.5	34.41	150.63
DO4MAY63	Dorrigo	NSW	4	10/ 5/1963	16.0	31.28	152.30
BL3JUN64	Blackheath	NSW	3	12/ 6/1964	12.3	34.27	150.79
LA2FEB69	Lameroo	VIC	2	10/ 2/1969	16.0	35.25	140.52
BD2MAY69	Break O' Day	TAS	2	31/ 5/1969	11.5	41.41	148.00
LI3AUG70	Liena	TAS	3	25/ 8/1970	11.5	41.57	146.13
VA1JAN71	Valencia Creek	VIC	1	30/ 1/1971	16.0	37.76	146.84
ED5FEB71	Eden	NSW	5	8/ 2/1971	21.7	36.11	150.02
TH1JAN74	Thallon	NSW	1	8/ 1/1974	24.0	28.60	148.81
MP4JAN74	Milparinka	SA	4	13/ 1/1974	20.0	29.59	141.49
TH2MAR74	Tweed Heads	NSW	2	11/ 3/1974	22.0	29.25	153.26
NC5MAR74	North Coast	NSW	5	14/ 3/1974	23.0	30.39	152.91
TH5MAR74	Tweed Heads	NSW	5	14/ 3/1974	22.0	28.55	153.32
GE2MAR74	Germantown	TAS	2	23/ 3/1974	15.6	41.55	148.15
CH2APR74	Coffs Harbour	NSW	2	22/ 4/1974	14.0	30.41	153.00
BU3AUG74	Burrinjuck	NSW	3	29/ 8/1974	10.0	36.60	149.38
WO3MAR75	Wollongong	NSW	3	11/ 3/1975	18.0	34.35	150.86
LE1JUN75	Leura	NSW	1	21/ 6/1975	10.5	33.67	150.38
YU1DEC75	Yunta	SA	1	13/12/1975	20.0	32.58	139.78
GG5OCT76	Googong	NSW	5	18/10/1976	10.0	36.42	149.84
RA1MAR77	Railton	TAS	1	27/ 3/1977	14.0	41.30	146.44
ME1APR77	Melbourne	VIC	1	8/ 4/1977	10.0	37.57	144.89
WO3MAR78	Wollongong	NSW	3	21/ 3/1978	18.0	34.40	150.65
MW4MAR78	Mount Wilson	NSW	4	21/ 3/1978	18.5	33.85	150.20
CA2APR78	Cabbage Tree	VIC	2	3/ 4/1978	14.0	37.66	148.73
TA2JUN78	Tanybryn	VIC	2	4/ 6/1978	9.0	38.67	143.65
SC1FEB81	Stony Creek	NSW	1	7/ 2/1981	22.0	32.98	151.52
OB2MAY81	Orbost	VIC	2	26/ 5/1981	14.0	37.72	148.49
CO3OCT82	Comboyne	NSW	3	12/10/1982	17.0	31.03	152.85
DT1MAR83	Dutton	SA	1	3/ 3/1983	20.2	34.36	139.09
FB2MAR83	Fords Bridge	NSW	2	21/ 3/1983	18.4	29.67	145.50
DA2FEB84	Dapto	NSW	2	19/ 2/1984	19.0	34.44	150.73
DO2JUL85	Dorrigo	NSW	2	10/ 7/1985	11.0	31.62	152.43
SY1AUG86	Sydney	NSW	1	6/ 8/1986	10.0	33.87	151.21
SY4AUG86	Sydney	NSW	4	7/ 8/1986	10.0	34.22	150.83

Table 1. (Cont.)

Storm Name	Region	State	Storm Duration (days)	Date Ended	Storm Dew Point (°C)	Approximate Storm Centre	
						Lat. (°S)	Long. (°E)
SP4MAY87	Springbrook	NSW	4	12/ 5/1987	15.4	28.56	153.46
NY3APR89	Nyngan	NSW	3	3/ 4/1989	17.0	31.29	147.33
NE3FEB90	Newcastle	NSW	3	4/ 2/1990	21.0	32.83	151.81
NY7APR90	Nyngan	NSW	7	14/ 4/1990	20.5	29.51	148.45
GI3APR90	Gippsland	VIC	3	22/ 4/1990	14.5	37.88	146.51

3. ANALYSIS OF TOTAL RAINFALL OVER STANDARD AREAS

Observations of daily rainfall were extracted from the Bureau of Meteorology computer archive. Using these and unofficial data when available (listed in Appendix, Table A3), the rainfall totals were plotted at a scale to match a topographic map of the region. These totals were extensively checked and corrected in order to include as much data as possible. Isohyets were drawn using the topographic map as an underlay to provide guidance as to the direction of moisture inflow, especially in areas of little or no data. The isohyets were then digitised and a Laplacian smoothing splines surface (Canterford et al., 1985) was fitted to the digitised data. Values of the total rainfall could then be obtained at grid points with a typical spacing of 0.0125 of a degree covering the analysed area.

Each event was analysed for the total rainstorm duration. If the centre of the rainstorm moved significantly during this time or there was more than one burst of heavy rain within the total duration, the event was analysed and processed separately for two or more durations.

A curve of rainfall depth versus area was constructed from the grid point data for each rainstorm. This was done by taking small, regular class intervals of rainfall depth and calculating the area (as represented by the number of grid points) of the rainstorm falling within each interval. Cumulative storm depth and area totals were then plotted to give the depth-area curve (Figure 2). The mean rainfall depth was then obtained at each of ten standard areas. These areas being 10, 100, 500, 1000, 2500, 5000, 10 000, 20 000, 40 000 and 60 000 km². The areas were selected to cover the range of catchment sizes for which Probable Maximum Precipitation (PMP) estimates were required.

The report on the development of the Generalised Southeast Australia Method of PMP estimation (Bureau of Meteorology, 1996) gives more information about this procedure.

Key to Table 2

Storm Name:

As for Table 1.

Date :

As for Date Ended in Table 1.

Duration:

As for Storm Duration in Table 1.

Area:

Standard area in square kilometres, at which rainfall depths were derived from each rainstorm's isohyetal analysis.

Depth:

The rainfall depth in millimetres, at each of the standard areas.

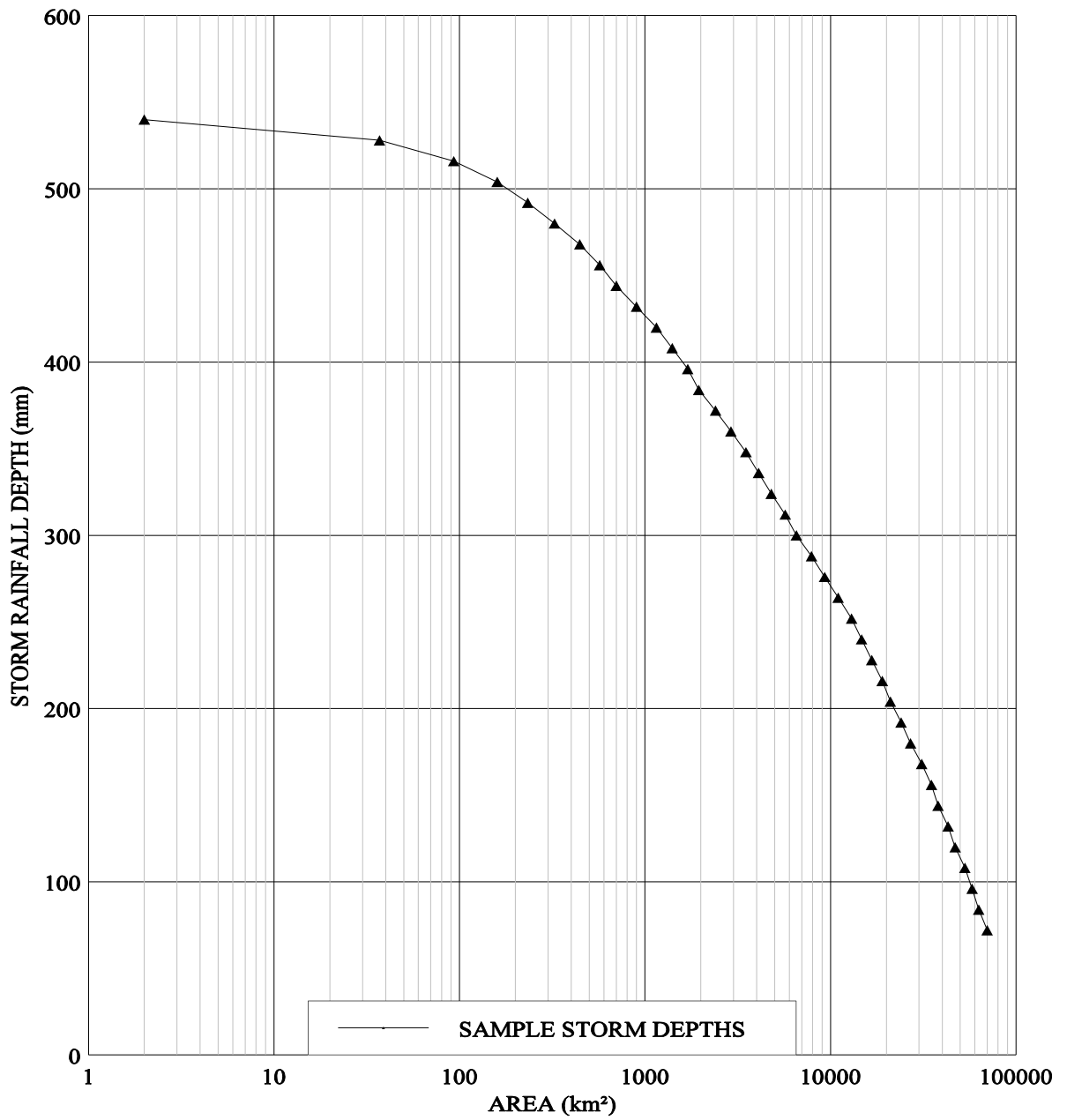


Figure 2. Example of Rainfall Depth Versus Area Curve for a Rainstorm

Table 2. Mean Rainfall Depth over Each Standard Area for Each Storm.

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
TR1APR89	2/ 4/1889	1	10	139
			100	136
			500	130
			1000	124
			2500	111
			5000	102
			10000	93
			20000	85
			40000	74
ST4APR89	17/ 4/1889	4	10	231
			100	220
			500	200
			1000	188
			2500	165
			5000	145
			10000	126
			20000	104
			40000	75
SY6MAY89	29/ 5/1889	6	10	616
			100	612
			500	610
			1000	609
			2500	603
			5000	576
			10000	515
			20000	412
			HA3MAR93	10/ 3/1893
100	521			
500	490			
1000	456			
2500	395			
5000	340			
10000	274			
20000	204			
MP4MAR93	10/ 3/1893	4		
			100	651
			500	549
			1000	496
			2500	430
			5000	383
			10000	328

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
BU5DEC93	31/12/1893	5	10	556
			100	554
			500	535
			1000	513
			2500	474
			5000	432
			10000	377
			20000	306
			40000	232
CO2FEB96	12/ 2/1896	2	10	306
			100	294
			500	249
			1000	230
			2500	214
			5000	202
			10000	188
			20000	173
			40000	154
UL4FEB98	15/ 2/1898	4	10	756
			100	751
			500	733
			1000	715
			2500	661
			5000	594
			10000	506
			20000	407
			40000	297
OR1MAR00	21/ 3/1900	1	10	199
			100	192
			500	167
			1000	146
			2500	118
			5000	102
			10000	87
			20000	65
			40000	43
60000	30			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
WA7APR01	26/ 4/1901	7	10	373
			100	364
			500	350
			1000	333
			2500	312
			5000	286
			10000	250
			20000	206
SY4JUL04	12/ 7/1904	4	10	548
			100	540
			500	533
			1000	518
			2500	470
			5000	409
			10000	346
			20000	273
WV1MAR10	6/ 3/1910	1	10	203
			100	197
			500	180
			1000	168
			2500	157
			5000	149
			10000	137
			20000	122
			40000	106
60000	96			
CN1JAN11	12/ 1/1911	1	10	146
			100	145
			500	143
			1000	142
			2500	138
			5000	133
			10000	125
			20000	115
			40000	104
60000	96			
W05MAR14	24/ 3/1914	5	10	744
			100	726
			500	695
			1000	657
			2500	591
			5000	532
			10000	450
			20000	344

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
ED3FEB19	27/ 2/1919	3	10	728
			100	706
			500	641
			1000	605
			2500	527
			5000	451
			10000	366
			20000	252
WI3MAR21	1/ 3/1921	3	10	270
			100	259
			500	239
			1000	231
			2500	220
			5000	211
			10000	204
			20000	197
			40000	189
60000	179			
MA2MAY21	16/ 5/1921	2	10	422
			100	418
			500	413
			1000	411
			2500	406
			5000	392
			10000	352
			20000	266
MA5MAY21	16/ 5/1921	5	10	735
			100	729
			500	719
			1000	702
			2500	650
			5000	584
			10000	493
			20000	382
			40000	266
KI5JUL22	29/ 7/1922	5	10	628
			100	623
			500	609
			1000	594
			2500	556
			5000	514
			10000	441
			20000	337

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
BU1MAY25	27/ 5/1925	1	10	266
			100	262
			500	241
			1000	226
			2500	208
			5000	194
			10000	173
			20000	139
BU4MAY25	28/ 5/1925	4	10	430
			100	423
			500	410
			1000	390
			2500	339
			5000	300
			10000	259
			20000	211
KI5MAY25	28/ 5/1925	5	10	726
			100	721
			500	710
			1000	681
			2500	608
			5000	529
			10000	422
			20000	311
AD3MAR26	25/ 3/1926	3	10	263
			100	260
			500	244
			1000	233
			2500	220
			5000	211
			10000	202
			20000	194
			40000	185
			60000	176

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
UN2FEB28	18/ 2/1928	2	10	255
			100	251
			500	225
			1000	206
			2500	184
			5000	170
			10000	152
			20000	130
			40000	110
HI6FEB29	11/ 2/1929	6	10	859
			100	851
			500	838
			1000	828
			2500	797
			5000	745
			10000	671
			20000	573
			40000	408
MT2APR29	5/ 4/1929	2	10	462
			100	459
			500	439
			1000	413
			2500	359
			5000	313
			10000	262
			20000	213
			40000	154
HA1JUN30	19/ 6/1930	1	10	415
			100	412
			500	407
			1000	320
			2500	347
			5000	297
			10000	234
20000	164			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
HA5JUN30	20/ 6/1930	5	10	648
			100	641
			500	624
			1000	611
			2500	561
			5000	501
			10000	424
			20000	327
WD2DEC30	7/12/1930	2	10	190
			100	182
			500	165
			1000	155
			2500	139
			5000	128
			10000	114
			TH1FEB31	6/ 2/1931
100	567			
500	511			
1000	476			
2500	423			
5000	363			
10000	277			
20000	179			
HA5APR31	25/ 4/1931	5	10	718
			100	701
			500	642
			1000	610
			2500	558
			5000	501
			10000	426
			20000	347

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
BH1NOV33	29/11/1933	1	10	166
			100	162
			500	150
			1000	142
			2500	133
			5000	124
			10000	116
			20000	107
			40000	92
60000	82			
AV2DEC33	1/12/1933	2	10	231
			100	229
			500	219
			1000	210
			2500	193
			5000	171
			10000	147
			20000	117
			40000	83
BE5JAN34	9/ 1/1934	5	10	647
			100	638
			500	622
			1000	601
			2500	540
			5000	478
			10000	393
			20000	301
WA5DEC34	3/12/1934	5	10	401
			100	374
			500	338
			1000	324
			2500	304
			5000	281
			10000	251
			20000	214

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
LA2DEC35	27/12/1935	2	10	323
			100	321
			500	309
			1000	290
			2500	254
			5000	223
			10000	184
			20000	138
			ME4OCT37	19/10/1937
100	297			
500	270			
1000	250			
2500	218			
5000	184			
10000	148			
20000	114			
TA6MAR39	1/ 3/1939	6		
			100	284
			500	277
			1000	269
			2500	254
			5000	237
			10000	218
			20000	199
			40000	173
FP3JAN41	26/ 1/1941	3	10	383
			100	370
			500	317
			1000	278
			2500	236
			5000	203
			10000	174
			20000	146
			40000	117

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
WO2MAY43	17/ 5/1943	2	10	525
			100	519
			500	491
			1000	462
			2500	394
			5000	327
			10000	254
			20000	190
WO5MAY43	20/ 5/1943	5	10	827
			100	817
			500	790
			1000	757
			2500	691
			5000	607
			10000	493
			20000	372
UL3APR45	10/ 4/1945	3	10	521
			100	518
			500	513
			1000	507
			2500	470
			5000	426
			10000	359
			20000	265
YP2FEB46	18/ 2/1946	2	10	227
			100	224
			500	217
			1000	214
			2500	209
			5000	204
			10000	195
			20000	182
40000	169			
60000	161			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
MO1FEB46	19/ 2/1946	1	10	174
			100	171
			500	163
			1000	160
			2500	152
			5000	142
			10000	131
			20000	117
			40000	98
60000	81			
PO3MAR46	18/ 3/1946	3	10	315
			100	312
			500	308
			1000	302
			2500	281
			5000	255
			10000	217
			20000	167
GF3MAR46	26/ 3/1946	3	10	644
			100	632
			500	582
			1000	553
			2500	504
			5000	454
			10000	403
			20000	337
NA4APR46	19/ 4/1946	4	10	591
			100	588
			500	578
			1000	558
			2500	511
			5000	465
			10000	413
			20000	338
			40000	243
60000	186			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
TH1JAN47	24/ 1/1947	1	10	538
			100	496
			500	409
			1000	367
			2500	313
			5000	255
			10000	205
			10000	205
RA5JUN49	19/ 6/1949	5	10	535
			100	527
			500	501
			1000	482
			2500	457
			5000	429
			10000	391
			20000	334
			40000	249
			60000	189
HA5AUG49	29/ 8/1949	5	10	619
			100	616
			500	614
			1000	607
			2500	572
			5000	513
			10000	445
			40000	228
WP2FEB50	3/ 2/1950	2	10	245
			100	243
			500	229
			1000	214
			2500	192
			5000	175
			10000	157
			60000	109

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
AR1MAR50	17/ 3/1950	1	10	160
			100	160
			500	158
			1000	157
			2500	156
			5000	155
			10000	150
			20000	140
			40000	126
RW4MAR50	20/ 3/1950	4	10	278
			100	274
			500	267
			1000	259
			2500	244
			5000	226
			10000	205
			20000	180
			40000	148
CA7MAR50	23/ 3/1950	7	10	411
			100	403
			500	380
			1000	365
			2500	340
			5000	313
			10000	284
			20000	257
			40000	229
DO1JUN50	24/ 6/1950	1	10	631
			100	612
			500	539
			1000	481
			2500	390
			5000	319
			10000	245
			20000	177

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
DO5JUN50	26/ 6/1950	5	10	1024
			100	978
			500	858
			1000	789
			2500	666
			5000	558
			10000	466
			20000	373
			40000	264
WA3FEB51	20/ 2/1951	3	10	530
			100	477
			500	366
			1000	317
			2500	257
			5000	209
BE5JUN52	18/ 6/1952	5	10	530
			100	522
			500	516
			1000	510
			2500	485
			5000	447
			10000	382
			20000	277
VI5JUN52	19/ 6/1952	5	10	557
			100	501
			500	407
			1000	362
			2500	292
			5000	247
			10000	205
			20000	162
			40000	120
60000	95			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
HA2FEB54	21/ 2/1954	2	10	837
			100	751
			500	648
			1000	609
			2500	557
			5000	494
			10000	415
			20000	335
			40000	224
TH1FEB54	21/ 2/1954	1	10	521
			100	502
			500	441
			1000	403
			2500	353
			5000	317
			10000	259
			20000	177
			DO5FEB54	22/ 2/1954
100	991			
500	814			
1000	720			
2500	615			
5000	547			
10000	466			
20000	360			
40000	253			
DU1FEB55	24/ 2/1955	1	10	310
			100	306
			500	295
			1000	284
			2500	265
			5000	247
			10000	227
			20000	207
			40000	181
60000	164			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
DU2FEB55	25/ 2/1955	2	10	331
			100	329
			500	325
			1000	320
			2500	313
			5000	307
			10000	295
			20000	275
			40000	244
DU3FEB55	26/ 2/1955	3	10	382
			100	380
			500	365
			1000	357
			2500	346
			5000	333
			10000	317
			20000	298
			40000	274
DU4FEB55	26/ 2/1955	4	10	363
			100	362
			500	359
			1000	357
			2500	351
			5000	342
			10000	329
			20000	309
			40000	284
DO1JAN59	22/ 1/1959	1	10	524
			100	503
			500	444
			1000	406
			2500	356
			5000	319
			10000	267
			20000	201
			40000	129

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
DO5JAN59	24/ 1/1959	5	10	724
			100	707
			500	655
			1000	614
			2500	546
			5000	485
			10000	421
			20000	336
BA1APR59	2/ 4/1959	1	10	142
			100	133
			500	122
			1000	117
			2500	110
			5000	104
			10000	93
			20000	75
SE2APR60	23/ 4/1960	2	10	377
			100	361
			500	311
			1000	291
			2500	268
			5000	251
			10000	229
			20000	204
WO3NOV61	20/11/1961	3	10	835
			100	824
			500	720
			1000	638
			2500	494
DO4MAY63	10/ 5/1963	4	10	729
			100	715
			500	658
			1000	623
			2500	560
			5000	515
			10000	455
20000	370			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
BL3JUN64	12/ 6/1964	3	10	554
			100	544
			500	499
			1000	467
			2500	416
			5000	373
			10000	329
			20000	276
			40000	205
LA2FEB69	10/ 2/1969	2	10	161
			100	157
			500	146
			1000	140
			2500	134
			5000	128
			10000	120
			20000	109
			40000	92
BD2MAY69	31/ 5/1969	2	10	333
			100	331
			500	322
			1000	310
			2500	279
			5000	236
			10000	182
			20000	131
			40000	90
LI3AUG70	25/ 8/1970	3	10	312
			100	309
			500	284
			1000	262
			2500	225
			5000	189
			10000	153
			20000	119
			40000	84
60000	66			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
VA1JAN71	30/ 1/1971	1	10	252
			100	249
			500	238
			1000	227
			2500	197
			5000	156
			10000	117
			20000	82
ED5FEB71	8/ 2/1971	5	10	722
			100	715
			500	705
			1000	692
			2500	640
			5000	573
			10000	470
			20000	320
TH1JAN74	8/ 1/1974	1	10	355
			100	354
			500	333
			1000	316
			2500	286
			5000	257
			10000	224
			20000	190
MP4JAN74	13/ 1/1974	4	10	360
			100	357
			500	351
			1000	347
			2500	334
			5000	317
			10000	296
			20000	269
40000	232			
60000	209			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
TH2MAR74	11/ 3/1974	2	10	728
			100	717
			500	704
			1000	687
			2500	633
			5000	571
			10000	500
			20000	412
			40000	280
NC5MAR74	14/ 3/1974	5	10	937
			100	911
			500	842
			1000	794
			2500	712
			5000	650
			10000	582
			20000	499
			40000	346
TH5MAR74	14/ 3/1974	5	10	1086
			100	1033
			500	903
			1000	840
			2500	745
			5000	667
			10000	583
			20000	449
			GE2MAR74	23/ 3/1974
100	367			
500	286			
1000	233			
2500	143			
5000	87			
10000	47			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
CH2APR74	22/ 4/1974	2	10	313
			100	312
			500	304
			1000	291
			2500	254
			5000	224
			10000	167
			10000	167
BU3AUG74	29/ 8/1974	3	10	520
			100	515
			500	498
			1000	477
			2500	433
			5000	390
			10000	314
			20000	237
			60000	133
WO3MAR75	11/ 3/1975	3	10	725
			100	651
			500	555
			1000	474
			2500	308
			5000	182
LE1JUN75	21/ 6/1975	1	10	328
			100	307
			500	270
			1000	258
			2500	240
			5000	221
			10000	193
			40000	117

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
YU1DEC75	13/12/1975	1	10	157
			100	154
			500	147
			1000	141
			2500	127
			5000	112
			10000	95
			20000	79
			40000	63
GG5OCT76	18/10/1976	5	10	733
			100	704
			500	654
			1000	622
			2500	552
			5000	481
			10000	400
			20000	294
			RA1MAR77	27/ 3/1977
100	125			
500	108			
1000	96			
2500	80			
5000	68			
10000	56			
20000	45			
40000	31			
ME1APR77	8/ 4/1977	1	10	194
			100	186
			500	167
			1000	155
			2500	133
			5000	115
			10000	90
WO3MAR78	21/ 3/1978	3	10	902
			100	831
			500	733
			1000	669
			2500	559

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
MW4MAR78	21/ 3/1978	4	10	871
			100	842
			500	732
			1000	671
			2500	612
			5000	549
			10000	461
			40000	261
CA2APR78	3/ 4/1978	2	10	351
			100	349
			500	338
			1000	325
			2500	290
			5000	250
			10000	199
			20000	138
TA2JUN78	4/ 6/1978	2	10	345
			100	335
			500	274
			1000	226
			2500	150
			5000	106
			10000	71
			SC1FEB81	7/ 2/1981
100	402			
500	308			
1000	250			
2500	174			
5000	123			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
OB2MAY81	26/ 5/1981	2	10	287
			100	284
			500	270
			1000	259
			2500	236
			5000	210
			10000	179
			20000	149
			40000	117
60000	96			
CO3OCT82	12/10/1982	3	10	504
			100	466
			500	413
			1000	386
			2500	349
			5000	319
			10000	283
			20000	236
			40000	181
60000	142			
DT1MAR83	3/ 3/1983	1	10	156
			100	148
			500	119
			1000	101
			2500	79
			5000	64
			10000	48
			20000	31
FB2MAR83	21/ 3/1983	2	10	181
			100	181
			500	177
			1000	175
			2500	169
			5000	162
			10000	155
			20000	148
			40000	140
60000	133			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
DA2FEB84	19/ 2/1984	2	10	789
			100	715
			500	471
			1000	375
			2500	254
			5000	172
			10000	97
DO2JUL85	10/ 7/1985	2	10	465
			100	457
			500	427
			1000	400
			2500	357
			5000	316
			10000	271
			20000	223
			60000	130
SY1AUG86	6/ 8/1986	1	10	361
			100	340
			500	311
			1000	291
			2500	268
			5000	251
			10000	225
20000	172			
SY4AUG86	7/ 8/1986	4	10	576
			100	560
			500	522
			1000	502
			2500	471
			5000	439
			10000	390
20000	312			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
SP4MAY87	12/ 5/1987	4	10	795
			100	751
			500	658
			1000	592
			2500	476
			5000	376
			10000	292
			20000	199
NY3APR89	3/ 4/1989	3	10	446
			100	440
			500	417
			1000	395
			2500	361
			5000	318
			10000	256
			20000	193
NE3FEB90	4/ 2/1990	3	10	520
			100	510
			500	476
			1000	463
			2500	442
			5000	414
			10000	374
			20000	321
NY7APR90	14/ 4/1990	7	10	405
			100	399
			500	377
			1000	356
			2500	312
			5000	282
			10000	257
			20000	233
40000	208			
60000	192			

Table 2. (Cont.)

Storm Name	Date	Duration (Days)	Area (km²)	Depth (mm)
GI3APR90	22/ 4/1990	3	10	373
			100	363
			500	333
			1000	322
			2500	299
			5000	270
			10000	233
			20000	184
			40000	130
60000	98			

4. MAXIMUM PROPORTION OF TOTAL RAINFALL AT STANDARD DURATIONS

The maximum proportion of the total rainfall that fell within a standard duration was calculated at each standard duration and area for all the significant rainfall events. The results, expressed in percentages, are given in Table 3. To calculate these percentages, a temporal pattern was derived for the rainstorms.

The temporal pattern is the variation in time of rainfall within the total duration of each rainstorm for each standard area. These temporal patterns were obtained by using daily data and pluviograph data. Three-hourly data from the synoptic stations operated by the Bureau of Meteorology were also used when available. Storm studies and PMP reports were another source of temporal distribution data.

The daily rainfall data (9:00 am to 9:00 am) for the selected rainstorm dates were collected and checked for both temporal and spatial consistency. The corrected daily rainfall data were then used to calculate the spatially weighted (Thiesson, 1911) average daily rainfall and hence an average daily rainfall (9:00 am to 9:00 am) temporal pattern for each of the standard areas.

The standard areas were set at 100, 500, 1 000, 2 500, 10 000, 20 000, 40 000 and 60 000 km². Parallelograms of areas approximating the standard areas (Figure 3) were drawn about the centre of the rainstorm in a way that enclosed the maximum number of corrected high rainfall totals. An outer parallelogram was also specified to allow for the influence of rainfall stations near the border of the standard area parallelograms.

The next step was to derive a three hourly rainfall pattern for each standard area of the rainstorm. This was done by collecting and checking three hourly data from all possible sources and then manually weighting them for (i) their consistency with the average daily rainfall temporal patterns for the standard areas and (ii) the geographical relevance of their location to these areas. More information about the sources of data and weightings used to derive the temporal patterns is given in the Appendix.

The maximum proportions of rainfall at the standard durations (24-, 36-, 48-, 72- and 96-hours) were then calculated from these temporal patterns. They are expressed as a percentage of the total rainfall and presented in Table 3. The actual rainfall depth at various durations can be obtained by multiplying the total rainfall given in Table 2 by the percentage given for the required area in Table 3. As temporal patterns were not derived for a standard area of 10 km², the percentages derived for 100 km² may be applied to the 10 km² depths.

The temporal patterns for each rainstorm were calculated for the whole duration of the event but the maximum proportion percentages in Table 3 are only given for durations up to 96 hours. Temporal patterns for longer durations may represent multiple rainfall events.

Key to Table 3

Storm Name:

As for Table 1.

Date Ended:

As for Table 1.

Duration:

Despite being quoted in hours instead of days, these durations are for 9:00 am to 9:00 am raindays as in Table 1.

Area:

The temporal patterns used to calculate these maximum proportions were derived at areas approximating the standard areas and then adjusted to correspond to the standard areas.

24h% etc.

These percentages show the highest percentage of the total storm rainfall that fell in that particular duration. For rainstorms *without* 3-hourly observations they refer to the 9:00 am to 9:00 am period while for the rainstorms *with* 3-hourly observations they refer to any 24-hour period; 0:00 to 0:00, 3:00 to 3:00, 6:00 to 6:00, 9:00 to 9:00, 12:00 to 12:00, 15:00 to 15:00, 18:00 to 18:00 or 21:00 to 21:00. To check if a particular event's temporal pattern is based on 3-hourly data see Table A1.

36h%

A dash in this column indicates that this rainstorm did not have 3-hourly observation data. The highest percentage of the total storm rainfall for this rainstorm is based on a temporal pattern at 24 from 9:00 am to 9:00 am.

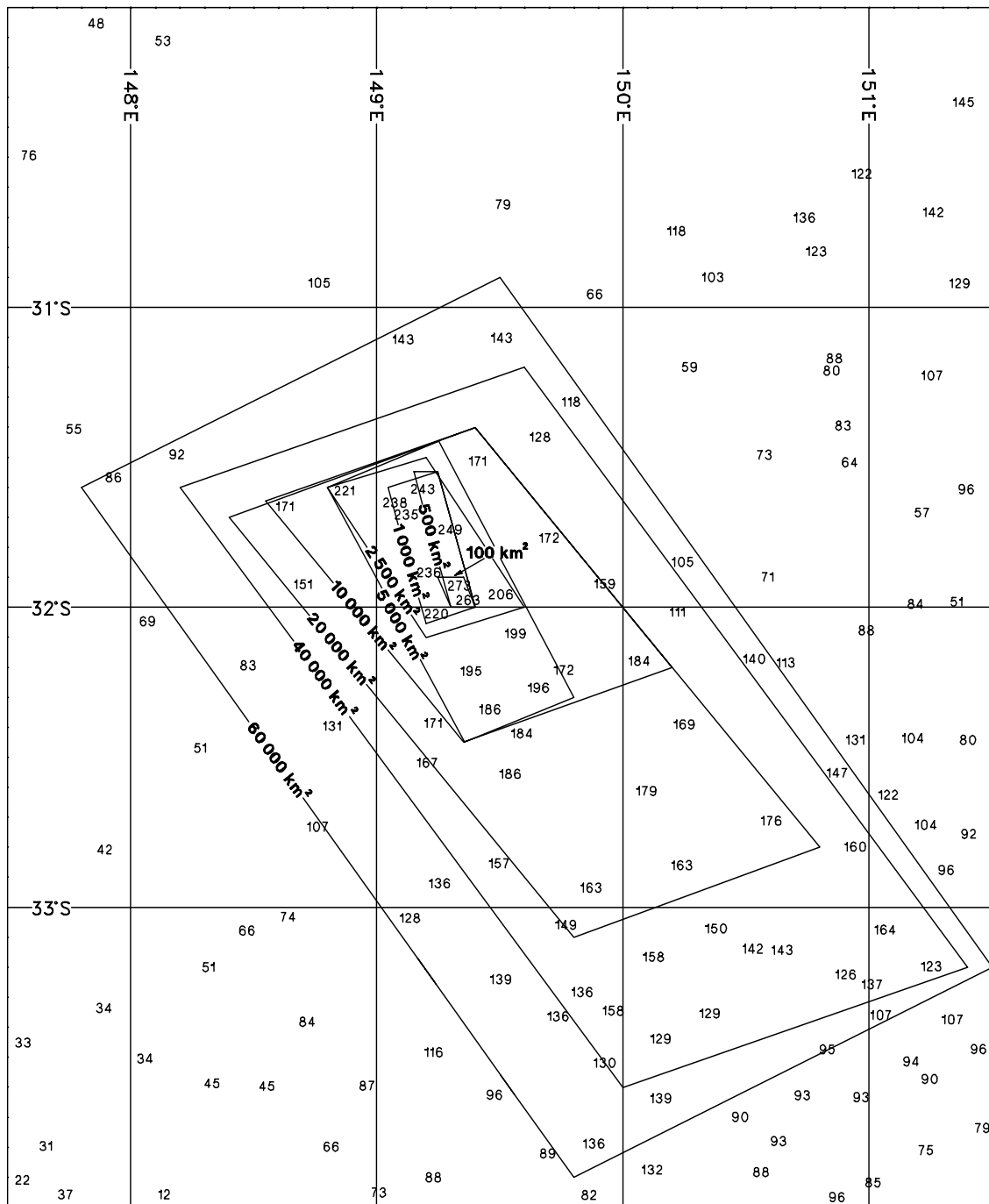


Figure 3. Parallelograms of Standard Areas Fitted to a Rainfall Distribution.

Table 3. Maximum Percentage of Total Rainfall at Standard Durations and Areas.

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
TR1APR89	2/ 4/1889	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
ST4APR89	17/ 4/1889	96	100	80.1	86.9	95.5	99.6	100.0
			500	72.1	80.0	91.8	99.9	100.0
			1000	68.1	76.3	89.6	100.0	100.0
			2500	70.0	77.0	87.9	99.8	100.0
			5000	68.4	75.9	88.0	99.8	100.0
			10000	62.0	71.2	87.6	99.8	100.0
			20000	56.7	69.5	87.9	99.9	100.0
			40000	56.4	72.2	89.9	99.9	100.0
SY6MAY89	29/ 5/1889	144	100	37.0	-	65.2	84.9	94.9
			500	43.2	-	65.7	84.8	92.8
			1000	45.9	-	68.2	86.1	93.0
			2500	49.6	-	73.4	88.9	95.4
			5000	48.3	-	71.4	88.1	95.9
			10000	46.3	-	69.7	86.0	95.8
			20000	44.3	-	67.5	83.2	95.1
HA3MAR93	10/ 3/1893	72	100	85.4	-	91.6	100.0	
			500	85.8	-	91.8	100.0	
			1000	91.5	-	95.1	100.0	
			2500	81.5	-	94.7	100.0	
			5000	78.7	-	93.3	100.0	
			10000	82.9	-	95.9	100.0	
			20000	83.3	-	96.1	100.0	
MP4MAR93	10/ 3/1893	96	100	81.1	-	95.5	100.0	100.0
			500	79.4	-	93.2	99.8	100.0
			1000	79.3	-	93.0	99.8	100.0
			2500	78.0	-	93.7	99.8	100.0
			5000	72.2	-	93.4	99.7	100.0
			10000	65.7	-	93.2	99.8	100.0

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
BU5DEC93	31/12/1893	120	100	43.6	-	67.2	87.4	96.3
			500	39.3	-	69.1	82.6	95.7
			1000	39.8	-	68.5	82.9	95.4
			2500	36.4	-	71.2	90.3	96.8
			5000	40.5	-	73.1	90.9	97.4
			10000	44.1	-	69.5	89.1	97.7
			20000	47.2	-	71.8	90.4	98.0
			40000	45.6	-	72.6	89.4	95.5
			60000	42.9	-	70.1	86.0	94.8
CO2FEB96	12/ 2/1896	48	100	56.3	-	100.0		
			500	56.2	-	100.0		
			1000	55.4	-	100.0		
			2500	55.7	-	100.0		
			5000	60.3	-	100.0		
			10000	56.1	-	100.0		
			20000	54.8	-	100.0		
			40000	53.8	-	100.0		
			60000	52.9	-	100.0		
UL4FEB98	15/ 2/1898	96	100	28.1	-	50.4	78.4	100.0
			500	29.9	-	52.8	79.1	100.0
			1000	32.0	-	56.2	78.0	100.0
			2500	32.3	-	55.7	79.5	100.0
			5000	30.6	-	53.7	79.2	100.0
			10000	31.4	-	59.1	80.7	100.0
			20000	31.0	-	59.7	79.5	100.0
			40000	30.8	-	59.5	79.2	100.0
			60000	30.8	-	59.5	79.2	100.0
OR1MAR00	21/ 3/1900	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
			60000	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
WA7APR01	26/ 4/1901	168	100	32.1	-	54.5	72.6	86.9
			500	33.0	-	56.2	77.5	90.9
			1000	33.2	-	59.9	80.6	89.9
			2500	34.3	-	62.7	80.4	90.1
			5000	33.5	-	63.3	80.3	90.8
			10000	35.0	-	61.7	78.8	90.4
			20000	30.9	-	58.9	75.4	90.6
SY4JUL04	12/ 7/1904	96	100	38.5	-	74.5	89.1	100.0
			500	38.3	-	74.5	89.0	100.0
			1000	38.6	-	74.2	89.9	100.0
			2500	38.3	-	73.7	90.3	100.0
			5000	39.1	-	72.1	89.5	100.0
			10000	41.6	-	68.8	90.8	100.0
			20000	40.1	-	68.9	91.9	100.0
WV1MAR10	6/ 3/1910	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
60000	100.0							
CN1JAN11	12/ 1/1911	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
60000	100.0							
WO5MAR14	24/ 3/1914	120	100	34.8	-	65.6	75.9	94.8
			500	35.7	-	64.9	75.7	93.8
			1000	42.6	-	67.0	79.3	93.6
			2500	37.9	-	59.5	74.1	91.9
			5000	33.3	-	52.5	67.5	89.8
			10000	30.1	-	51.9	64.2	88.3
			20000	27.2	-	45.8	59.4	86.5

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
ED3FEB19	27/ 2/1919	72	100	67.2	-	95.2	100.0	
			500	69.5	-	95.7	100.0	
			1000	68.6	-	95.1	100.0	
			2500	61.3	-	92.0	100.0	
			5000	56.1	-	85.0	100.0	
			10000	60.9	-	89.1	100.0	
			20000	61.0	-	89.1	100.0	
WI3MAR21	1/ 3/1921	72	100	98.9	98.9	98.9	100.0	
			500	98.7	98.7	98.7	100.0	
			1000	98.3	98.3	98.3	100.0	
			2500	95.9	95.9	95.9	100.0	
			5000	92.9	92.9	92.9	100.0	
			10000	94.4	94.4	94.4	100.0	
			20000	93.6	93.6	93.6	100.0	
			40000	93.6	93.6	93.6	100.0	
MA2MAY21	16/ 5/1921	48	100	63.3	-	100.0		
			500	56.9	-	100.0		
			1000	52.2	-	100.0		
			2500	55.0	-	100.0		
			5000	54.2	-	100.0		
			10000	51.5	-	100.0		
			20000	51.2	-	100.0		
MA5MAY21	16/ 5/1921	120	100	37.7	-	62.3	93.7	93.8
			500	36.8	-	64.5	97.5	97.7
			1000	37.2	-	64.4	97.8	98.1
			2500	36.2	-	63.7	98.2	98.6
			5000	37.7	-	66.7	98.6	99.0
			10000	35.2	-	64.9	96.8	99.1
			20000	34.3	-	64.2	96.2	99.1
KI5JUL22	29/ 7/1922	120	100	33.3	-	63.7	75.4	88.3
			500	31.3	-	60.9	77.0	89.3
			1000	31.2	-	61.5	77.4	89.1
			2500	31.8	-	57.2	79.7	90.2
			5000	34.4	-	58.8	81.8	91.9
			10000	36.0	-	63.3	82.3	91.7
			20000	32.6	-	57.3	75.0	88.8

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
BU1MAY25	27/ 5/1925	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
BU4MAY25	28/ 5/1925	96	100	80.5	94.1	99.1	100.0	100.0
			500	78.8	93.3	98.7	99.7	100.0
			1000	78.2	93.0	98.6	99.6	100.0
			2500	80.1	93.6	98.5	99.5	100.0
			5000	81.4	94.5	98.7	99.4	100.0
			10000	80.7	94.8	98.6	99.3	100.0
			20000	77.4	91.8	96.1	96.9	100.0
			40000	73.4	89.6	94.1	94.8	100.0
KI5MAY25	28/ 5/1925	120	100	56.0	-	84.4	97.4	100.0
			500	42.7	-	79.3	91.1	99.6
			1000	47.2	-	81.7	92.6	99.6
			2500	49.3	-	80.6	91.0	99.6
			5000	51.2	-	80.0	92.1	99.9
			10000	50.5	-	79.2	91.2	99.8
			20000	50.2	-	78.9	90.8	99.8
AD3MAR26	25/ 3/1926	72	100	51.9	-	85.1	100.0	
			500	53.2	-	87.8	100.0	
			1000	53.5	-	88.4	100.0	
			2500	53.7	-	89.5	100.0	
			5000	54.9	-	90.5	100.0	
			10000	56.1	-	91.2	100.0	
			20000	55.2	-	91.9	100.0	
			40000	51.4	-	90.6	100.0	
60000	47.6	-	89.9	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
UN2FEB28	18/ 2/1928	48	100	71.7	-	100.0		
			500	70.8	-	100.0		
			1000	71.0	-	100.0		
			2500	59.6	-	100.0		
			5000	55.5	-	100.0		
			10000	53.3	-	100.0		
			20000	59.2	-	100.0		
			40000	60.0	-	100.0		
			60000	60.6	-	100.0		
HI6FEB29	11/ 2/1929	144	100	40.1	-	64.3	85.4	97.1
			500	37.2	-	65.6	81.9	97.7
			1000	38.8	-	67.7	82.9	95.9
			2500	32.0	-	63.2	82.5	94.9
			5000	31.2	-	62.1	82.9	94.5
			10000	31.4	-	60.7	81.9	93.2
			20000	31.8	-	60.7	80.1	91.5
			40000	32.2	-	59.6	77.3	89.7
			60000	31.5	-	57.5	75.4	88.5
MT2APR29	5/ 4/1929	48	100	67.1	84.4	100.0		
			500	68.7	84.2	100.0		
			1000	66.4	84.5	100.0		
			2500	64.5	84.8	100.0		
			5000	63.9	84.8	100.0		
			10000	62.7	84.9	100.0		
			20000	63.0	84.9	100.0		
			40000	65.4	84.7	100.0		
HA1JUN30	19/ 6/1930	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
HA5JUN30	20/ 6/1930	120	100	47.4	-	86.8	95.9	98.1
			500	43.7	-	86.7	94.5	97.6
			1000	46.8	-	86.1	93.9	97.5
			2500	49.8	-	84.5	92.0	96.8
			5000	47.9	-	82.1	91.1	97.1
			10000	45.5	-	78.2	89.3	96.1
			20000	44.8	-	77.0	88.7	95.8
WD2DEC30	7/12/1930	48	100	90.8	98.2	100.0		
			500	89.9	98.1	100.0		
			1000	85.7	97.6	100.0		
			2500	85.2	97.6	100.0		
			5000	82.2	97.0	100.0		
			10000	71.4	95.0	100.0		
TH1FEB31	6/ 2/1931	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
HA5APR31	25/ 4/1931	120	100	28.1	-	48.6	64.8	86.9
			500	32.7	-	50.7	67.9	85.8
			1000	32.0	-	50.5	65.9	84.7
			2500	27.4	-	45.6	63.4	84.2
			5000	27.1	-	45.9	63.6	83.8
			10000	25.2	-	43.3	61.6	83.4
			20000	25.4	-	44.9	65.1	83.1
BH1NOV33	29/11/1933	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
60000	100.0							

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
AV2DEC33	1/12/1933	48	100	73.6	93.4	100.0		
			500	69.5	93.1	100.0		
			1000	64.8	93.0	100.0		
			2500	63.5	92.9	100.0		
			5000	65.7	90.5	100.0		
			10000	66.3	88.8	100.0		
			20000	58.2	85.3	100.0		
			40000	56.8	82.7	100.0		
BE5JAN34	9/ 1/1934	120	100	45.5	-	80.0	98.8	99.7
			500	42.9	-	84.2	98.5	99.8
			1000	45.4	-	86.1	98.4	99.9
			2500	47.6	-	87.4	98.5	100.0
			5000	45.1	-	87.2	98.1	100.0
			10000	45.8	-	84.8	97.3	99.6
			20000	47.3	-	82.4	97.0	99.4
			WA5DEC34	3/12/1934	120	100	84.0	98.3
500	85.4	98.1				98.3	99.9	100.0
1000	85.2	97.8				98.2	99.6	100.0
2500	84.8	97.8				98.1	99.7	100.0
5000	84.6	97.0				97.4	99.3	100.0
10000	84.1	96.5				97.6	99.0	99.8
20000	85.0	96.8				97.3	99.3	100.0
LA2DEC35	27/12/1935	48				100	58.2	-
			500	57.0	-	100.0		
			1000	57.6	-	100.0		
			2500	63.3	-	100.0		
			5000	67.3	-	100.0		
			10000	70.8	-	100.0		
			20000	70.5	-	100.0		
			ME4OCT37	19/10/1937	96	100	41.3	-
500	37.8	-				74.4	87.1	100.0
1000	38.3	-				73.6	86.9	100.0
2500	38.5	-				72.7	86.0	100.0
5000	37.6	-				70.7	84.8	100.0
10000	34.9	-				67.0	82.0	100.0
20000	31.7	-				60.1	80.3	100.0

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
TA6MAR39	1/ 3/1939	144	100	56.4	76.9	94.1	98.5	99.2
			500	54.7	75.6	94.0	98.2	98.7
			1000	52.0	75.3	94.3	98.1	98.9
			2500	49.7	74.7	93.6	98.5	98.9
			5000	48.7	73.1	92.9	98.1	98.8
			10000	47.1	71.4	91.0	97.9	98.6
			20000	45.0	68.1	85.5	97.3	98.6
			40000	41.2	60.8	79.7	96.0	98.0
			60000	43.1	60.2	78.8	94.1	97.0
FP3JAN41	26/ 1/1941	72	100	62.7	86.5	100.0	100.0	
			500	60.8	87.1	100.0	100.0	
			1000	58.9	84.2	100.0	100.0	
			2500	58.4	83.1	100.0	100.0	
			5000	60.5	82.5	100.0	100.0	
			10000	62.5	82.6	100.0	100.0	
			20000	63.2	82.9	100.0	100.0	
			40000	62.8	84.5	100.0	100.0	
WO2MAY43	17/ 5/1943	48	100	55.1	77.5	100.0		
			500	55.0	77.5	100.0		
			1000	56.7	77.6	100.0		
			2500	56.7	77.5	100.0		
			5000	55.7	77.5	100.0		
			10000	56.4	77.5	100.0		
			20000	60.3	78.9	100.0		
			40000	60.9	79.1	100.0		
WO5MAY43	20/ 5/1943	120	100	42.5	57.3	65.9	69.4	72.8
			500	42.9	57.9	66.6	71.8	75.2
			1000	43.2	60.1	72.1	75.5	78.3
			2500	44.6	61.1	73.2	75.6	78.7
			5000	43.3	58.3	69.7	73.2	78.5
			10000	41.6	56.4	67.4	70.8	75.4
			20000	37.4	48.4	61.0	64.2	73.7
UL3APR45	10/ 4/1945	72	100	67.9	-	90.7	100.0	
			500	66.9	-	92.7	100.0	
			1000	63.9	-	93.1	100.0	
			2500	69.3	-	91.9	100.0	
			5000	61.7	-	92.4	100.0	
			10000	70.5	-	92.1	100.0	
			20000	75.2	-	90.3	100.0	

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
YP2FEB46	18/ 2/1946	48	100	99.7	100.0	100.0		
			500	99.8	100.0	100.0		
			1000	99.8	100.0	100.0		
			2500	98.7	100.0	100.0		
			5000	95.4	100.0	100.0		
			10000	94.5	100.0	100.0		
			20000	90.0	100.0	100.0		
			40000	90.9	100.0	100.0		
			60000	91.2	100.0	100.0		
MO1FEB46	19/ 2/1946	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
			60000	100.0				
PO3MAR46	18/ 3/1946	72	100	65.4	-	94.3	100.0	
			500	66.8	-	96.5	100.0	
			1000	62.9	-	93.4	100.0	
			2500	62.7	-	92.1	100.0	
			5000	65.4	-	89.8	100.0	
			10000	63.2	-	89.6	100.0	
			20000	61.5	-	87.7	100.0	
GF3MAR46	26/ 3/1946	72	100	48.5	-	92.0	100.0	
			500	47.3	-	91.1	100.0	
			1000	46.8	-	90.7	100.0	
			2500	46.5	-	90.6	100.0	
			5000	48.0	-	91.4	100.0	
			10000	47.2	-	91.0	100.0	
			20000	47.1	-	90.9	100.0	

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
NA4APR46	19/ 4/1946	96	100	38.3	-	61.2	81.7	100.0
			500	36.6	-	60.2	80.8	100.0
			1000	36.0	-	60.5	81.0	100.0
			2500	39.6	-	62.7	83.1	100.0
			5000	36.2	-	59.2	78.5	100.0
			10000	32.5	-	53.9	70.8	100.0
			20000	37.2	-	58.8	77.1	100.0
			40000	37.9	-	59.5	78.0	100.0
			60000	37.9	-	59.5	78.0	100.0
TH1JAN47	24/ 1/1947	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
RA5JUN49	19/ 6/1949	120	100	63.7	83.7	91.2	94.2	97.6
			500	64.3	84.7	91.3	94.4	97.6
			1000	64.7	85.0	92.4	95.5	97.8
			2500	63.0	82.6	90.8	94.3	97.7
			5000	60.9	80.4	88.4	92.0	97.2
			10000	54.5	74.2	83.1	88.6	96.5
			20000	48.8	68.7	78.2	85.6	95.7
			40000	46.9	63.4	70.6	79.5	93.1
			60000	46.7	62.6	69.5	78.6	92.7
HA5AUG49	29/ 8/1949	120	100	47.1	-	75.7	96.9	100.0
			500	43.2	-	72.7	95.4	99.7
			1000	34.2	-	64.7	92.7	99.5
			2500	31.6	-	61.8	90.7	99.3
			5000	30.6	-	58.7	87.7	98.3
			10000	34.6	-	63.6	88.9	98.4
			20000	35.9	-	65.2	89.4	98.5
			40000	35.9	-	65.2	89.4	98.5

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
WP2FEB50	3/ 2/1950	48	100	100.0	-	100.0		
			500	87.0	-	100.0		
			1000	78.4	-	100.0		
			2500	73.1	-	100.0		
			5000	74.7	-	100.0		
			10000	69.9	-	100.0		
			20000	69.4	-	100.0		
			40000	70.2	-	100.0		
			60000	67.8	-	100.0		
AR1MAR50	17/ 3/1950	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
			60000	100.0				
RW4MAR50	20/ 3/1950	96	100	48.2	-	92.3	98.9	100.0
			500	53.8	-	91.0	98.6	100.0
			1000	50.6	-	90.2	98.3	100.0
			2500	47.5	-	88.5	97.5	100.0
			5000	44.4	-	87.4	96.6	100.0
			10000	45.7	-	87.6	96.9	100.0
			20000	47.7	-	85.3	96.2	100.0
			40000	43.7	-	79.9	94.8	100.0
			60000	43.4	-	79.4	94.7	100.0
CA7MAR50	23/ 3/1950	168	100	52.3	54.0	54.0	61.3	70.2
			500	44.0	45.5	45.5	57.0	74.3
			1000	39.9	41.2	43.0	56.8	73.6
			2500	36.8	37.8	45.5	59.9	73.1
			5000	36.3	37.3	45.2	58.9	71.1
			10000	35.8	38.4	46.3	59.2	71.0
			20000	28.0	38.9	41.3	56.0	69.2
			40000	27.0	34.9	42.6	60.8	69.4
			60000	30.8	37.1	46.7	65.6	69.2

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
DO1JUN50	24/ 6/1950	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
DO5JUN50	26/ 6/1950	120	100	61.2	-	84.4	95.5	98.3
			500	54.3	-	76.3	93.5	97.4
			1000	55.2	-	77.4	92.5	97.0
			2500	47.8	-	75.3	90.6	96.9
			5000	47.3	-	73.4	90.5	96.6
			10000	48.2	-	71.5	90.6	95.8
			20000	46.0	-	68.1	89.4	94.8
40000	45.3	-	67.2	89.1	94.6			
WA3FEB51	20/ 2/1951	72	100	57.8	85.9	98.6	100.0	
			500	64.3	89.4	98.8	100.0	
			1000	66.2	89.6	98.9	100.0	
			2500	66.9	89.1	99.0	100.0	
			5000	66.9	89.1	99.0	100.0	
BE5JUN52	18/ 6/1952	120	100	41.7	-	65.5	81.0	93.2
			500	36.8	-	62.8	79.9	92.5
			1000	37.1	-	62.8	78.8	92.3
			2500	38.4	-	60.5	76.8	91.4
			5000	38.8	-	57.9	74.8	90.6
			10000	40.7	-	58.5	75.3	90.4
			20000	39.4	-	58.0	76.2	91.2
VI5JUN52	19/ 6/1952	120	100	38.0	53.4	61.3	78.5	90.0
			500	40.5	56.0	63.8	81.0	91.5
			1000	40.9	57.5	65.7	82.8	92.3
			2500	42.0	59.2	67.7	83.3	92.8
			5000	42.7	57.7	65.3	81.4	92.2
			10000	40.1	55.3	63.0	79.1	91.8
			20000	38.2	52.9	60.8	78.0	93.0
			40000	29.8	36.7	49.0	70.0	92.5
60000	35.5	44.7	52.5	73.5	90.8			

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
HA2FEB54	21/ 2/1954	48	100	67.6	97.5	100.0		
			500	75.3	98.2	100.0		
			1000	76.7	98.4	100.0		
			2500	78.9	98.6	100.0		
			5000	82.5	98.9	100.0		
			10000	84.4	99.0	100.0		
			20000	83.6	98.9	100.0		
			40000	83.5	98.9	100.0		
TH1FEB54	21/ 2/1954	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
DO5FEB54	22/ 2/1954	120	100	68.4	90.3	93.1	93.1	98.7
			500	72.1	90.4	93.7	93.7	98.0
			1000	68.3	91.0	95.3	95.3	97.4
			2500	71.6	92.8	96.6	96.6	97.7
			5000	67.7	91.0	94.8	94.8	97.8
			10000	70.1	91.6	95.6	95.6	97.5
			20000	70.1	91.6	95.6	95.6	97.5
			40000	70.1	91.6	95.6	95.6	97.5
DU1FEB55	24/ 2/1955	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				
			60000	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
DU2FEB55	25/ 2/1955	48	100	52.5	73.6	100.0		
			500	59.8	78.3	100.0		
			1000	69.7	83.6	100.0		
			2500	69.0	83.3	100.0		
			5000	67.7	82.6	100.0		
			10000	71.9	84.8	100.0		
			20000	73.5	85.7	100.0		
			40000	71.5	84.5	100.0		
			60000	70.1	83.7	100.0		
DU3FEB55	26/ 2/1955	72	100	69.1	89.0	98.9	100.0	
			500	72.1	86.0	98.5	100.0	
			1000	78.4	85.8	98.7	100.0	
			2500	77.2	84.9	98.4	100.0	
			5000	76.7	85.4	98.5	100.0	
			10000	78.2	84.0	98.3	100.0	
			20000	79.7	85.0	98.5	100.0	
			40000	73.9	79.4	97.3	100.0	
			60000	72.2	78.3	97.1	100.0	
DU4FEB55	26/ 2/1955	96	100	68.3	78.0	95.4	99.4	100.0
			500	69.2	77.2	93.2	99.5	100.0
			1000	67.7	74.3	92.3	99.3	100.0
			2500	68.0	75.3	92.7	99.4	100.0
			5000	68.0	75.1	92.0	99.4	100.0
			10000	67.5	75.4	90.1	99.5	100.0
			20000	67.6	74.7	90.2	99.4	100.0
			40000	69.7	77.0	90.5	99.5	100.0
			60000	66.8	75.0	89.3	99.4	100.0
DO1JAN59	22/ 1/1959	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
			40000	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
DO5JAN59	24/ 1/1959	120	100	68.3	77.3	82.2	93.3	97.8
			500	65.1	73.5	81.6	92.4	96.3
			1000	65.6	74.6	82.1	92.6	96.5
			2500	63.3	75.1	82.2	92.9	97.2
			5000	62.6	74.7	81.7	92.1	97.0
			10000	59.9	71.0	80.7	92.4	97.3
			20000	59.1	69.8	80.4	92.5	97.4
			40000	59.1	69.8	80.4	92.5	97.4
BA1APR59	2/ 4/1959	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
SE2APR60	23/ 4/1960	48	100	75.4	89.7	100.0		
			500	75.3	89.6	100.0		
			1000	75.3	89.7	100.0		
			2500	75.3	89.6	100.0		
			5000	76.6	90.4	100.0		
			10000	75.3	89.7	100.0		
			20000	75.5	89.2	100.0		
			40000	69.7	90.9	100.0		
WO3NOV61	20/11/1961	72	100	55.7	83.6	91.3	100.0	
			500	57.5	83.7	91.0	100.0	
			1000	55.8	81.5	88.7	100.0	
			2500	52.9	78.4	85.5	100.0	
DO4MAY63	10/ 5/1963	96	100	50.0	65.9	74.8	87.7	100.0
			500	50.8	67.1	76.1	88.5	100.0
			1000	49.8	66.3	75.1	86.7	100.0
			2500	49.3	65.9	74.9	86.1	100.0
			5000	51.4	65.9	74.4	87.4	100.0
			10000	53.4	64.1	72.1	89.2	100.0
			20000	48.1	62.4	70.1	89.0	100.0

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
BL3JUN64	12/ 6/1964	72	100	60.0	76.6	88.7	100.0	
			500	60.6	77.4	88.8	100.0	
			1000	60.7	77.5	88.7	100.0	
			2500	63.2	78.3	85.9	100.0	
			5000	62.6	77.2	84.2	100.0	
			10000	44.3	64.6	74.3	100.0	
			20000	46.4	67.4	77.7	100.0	
			40000	36.7	57.1	69.8	100.0	
60000	39.2	54.8	69.7	100.0				
LA2FEB69	10/ 2/1969	48	100	75.0	90.0	100.0		
			500	78.0	90.9	100.0		
			1000	79.0	91.1	100.0		
			2500	80.2	91.7	100.0		
			5000	82.4	92.8	100.0		
			10000	82.0	92.6	100.0		
			20000	75.7	90.2	100.0		
			40000	71.8	89.0	100.0		
60000	73.1	89.4	100.0					
BD2MAY69	31/ 5/1969	48	100	65.2	88.1	100.0		
			500	66.3	88.8	100.0		
			1000	63.6	87.0	100.0		
			2500	63.2	86.7	100.0		
			5000	64.2	88.2	100.0		
			10000	66.3	89.3	100.0		
			20000	70.0	90.5	100.0		
			40000	72.9	94.3	100.0		
60000	76.6	95.1	100.0					
LI3AUG70	25/ 8/1970	72	100	64.9	77.8	98.6	100.0	
			500	65.2	79.2	98.7	100.0	
			1000	64.7	79.1	98.5	100.0	
			2500	65.8	80.6	98.6	100.0	
			5000	65.6	76.7	96.2	100.0	
			10000	64.2	74.9	95.4	100.0	
			20000	66.3	76.2	94.9	100.0	
			40000	64.0	74.7	93.2	100.0	
60000	64.6	74.6	92.9	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
VA1JAN71	30/ 1/1971	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
ED5FEB71	8/ 2/1971	120	100	62.3	67.0	77.7	87.5	96.4
			500	61.0	66.9	72.3	85.2	95.8
			1000	60.1	66.2	69.8	83.9	95.5
			2500	56.2	61.9	77.4	85.9	94.6
			5000	53.7	59.5	76.4	85.2	94.2
			10000	49.8	56.1	72.7	83.2	94.0
			20000	49.0	55.3	71.8	82.8	94.0
TH1JAN74	8/ 1/1974	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
MP4JAN74	13/ 1/1974	96	100	75.7	78.1	90.1	97.4	100.0
			500	65.7	67.9	79.7	93.7	100.0
			1000	61.3	63.3	75.1	92.4	100.0
			2500	53.5	56.0	67.5	90.3	100.0
			5000	47.7	52.9	62.8	88.9	100.0
			10000	46.4	52.1	62.3	88.6	100.0
			20000	41.2	57.5	62.3	87.9	100.0
40000	41.2	63.8	64.6	88.4	100.0			
60000	40.4	64.1	64.1	88.2	100.0			

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
TH2MAR74	11/ 3/1974	48	100	82.0	95.9	100.0		
			500	82.5	95.7	100.0		
			1000	81.8	96.0	100.0		
			2500	81.4	96.2	100.0		
			5000	82.6	97.1	100.0		
			10000	81.2	98.1	100.0		
			20000	80.8	98.4	100.0		
			40000	80.8	98.4	100.0		
NC5MAR74	14/ 3/1974	120	100	47.7	61.6	63.5	83.4	99.8
			500	45.5	59.4	61.3	83.8	99.8
			1000	44.8	60.3	62.2	85.2	99.8
			2500	45.4	60.8	62.7	85.6	99.9
			5000	45.7	60.3	62.1	85.3	99.9
			10000	41.4	55.6	59.8	85.4	99.8
			20000	41.5	52.6	58.3	87.1	99.9
			40000	41.5	52.6	58.3	87.1	99.9
TH5MAR74	14/ 3/1974	120	100	57.8	76.6	80.0	92.5	99.8
			500	60.1	79.2	82.6	93.0	99.8
			1000	57.6	77.9	81.6	92.1	99.6
			2500	56.5	74.8	78.5	90.7	99.5
			5000	57.2	73.4	76.9	89.8	99.1
			10000	56.9	73.0	76.1	90.7	99.3
			20000	53.6	69.0	72.1	89.4	99.2
GE2MAR74	23/ 3/1974	48	100	92.1	94.5	100.0		
			500	77.2	92.4	100.0		
			1000	70.1	91.5	100.0		
			2500	76.1	89.3	100.0		
			5000	78.6	87.1	100.0		
			10000	78.6	87.1	100.0		
CH2APR74	22/ 4/1974	48	100	86.0	89.6	100.0		
			500	85.6	89.3	100.0		
			1000	86.4	89.6	100.0		
			2500	87.3	90.4	100.0		
			5000	87.1	88.2	100.0		
			10000	81.8	87.5	100.0		

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
BU3AUG74	29/ 8/1974	72	100	50.3	67.3	90.7	100.0	
			500	50.6	67.0	90.8	100.0	
			1000	50.9	66.8	90.8	100.0	
			2500	51.7	66.9	91.0	100.0	
			5000	51.2	67.6	91.0	100.0	
			10000	52.1	69.2	91.4	100.0	
			20000	54.8	70.2	92.2	100.0	
			40000	49.6	68.0	90.6	100.0	
			60000	47.8	66.1	89.0	100.0	
WO3MAR75	11/ 3/1975	72	100	78.2	90.2	98.1	100.0	
			500	76.5	90.4	98.8	100.0	
			1000	73.0	89.3	98.1	100.0	
			2500	72.3	89.2	98.2	100.0	
			5000	70.9	89.1	98.4	100.0	
LE1JUN75	21/ 6/1975	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			40000	100.0				
YU1DEC75	13/12/1975	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			40000	100.0				
GG5OCT76	18/10/1976	120	100	35.0	49.4	59.4	79.8	94.1
			500	34.1	48.4	58.0	78.9	94.0
			1000	36.8	51.9	62.2	82.6	94.2
			2500	36.4	51.0	61.7	84.0	94.0
			5000	36.5	51.0	61.9	84.1	93.8
			10000	35.1	52.4	62.1	82.9	94.2
			20000	32.7	51.5	61.8	78.9	92.9

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
RA1MAR77	27/ 3/1977	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
ME1APR77	8/ 4/1977	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			WO3MAR78	21/ 3/1978	72	100	42.2	64.0
500	41.8	63.9				76.7	100.0	
1000	42.0	63.6				76.4	100.0	
2500	41.4	60.8				74.3	100.0	
MW4MAR78	21/ 3/1978	96	100	54.9	70.9	88.0	97.5	100.0
			500	56.9	71.5	88.1	97.0	100.0
			1000	55.5	70.8	87.8	97.0	100.0
			2500	54.4	69.3	85.6	97.2	100.0
			5000	54.9	69.3	85.1	97.0	100.0
			10000	55.1	68.5	84.9	96.9	100.0
			20000	49.7	64.2	77.4	95.8	100.0
CA2APR78	3/ 4/1978	48	100	70.4	96.1	100.0		
			500	65.4	96.3	100.0		
			1000	65.9	96.3	100.0		
			2500	63.8	96.4	100.0		
			5000	61.6	96.6	100.0		
			10000	60.8	96.9	100.0		
			20000	60.4	97.3	100.0		

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
TA2JUN78	4/ 6/1978	48	100	74.8	96.6	100.0		
			500	75.2	96.8	100.0		
			1000	75.2	96.7	100.0		
			2500	77.1	97.3	100.0		
			5000	79.9	97.7	100.0		
			10000	87.2	98.7	100.0		
SC1FEB81	7/ 2/1981	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
OB2MAY81	26/ 5/1981	48	100	61.3	61.3	100.0		
			500	56.9	56.9	100.0		
			1000	59.8	59.8	100.0		
			2500	90.9	95.2	100.0		
			5000	95.4	100.0	100.0		
			10000	94.9	100.0	100.0		
			20000	95.2	100.0	100.0		
			40000	94.6	100.0	100.0		
60000	95.1	100.0	100.0					
CO3OCT82	12/10/1982	72	100	58.8	76.5	93.6	100.0	
			500	59.3	76.5	93.5	100.0	
			1000	60.2	77.3	93.7	100.0	
			2500	61.5	78.6	94.2	100.0	
			5000	63.0	79.6	94.3	100.0	
			10000	62.9	77.9	93.6	100.0	
			20000	62.6	76.4	93.0	100.0	
			40000	60.4	73.6	92.2	100.0	
60000	55.8	70.0	91.4	100.0				
DT1MAR83	3/ 3/1983	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
FB2MAR83	21/ 3/1983	48	100	63.7	-	100.0		
			500	57.4	-	100.0		
			1000	56.8	-	100.0		
			2500	57.0	-	100.0		
			5000	60.5	-	100.0		
			10000	58.5	-	100.0		
			20000	66.5	-	100.0		
			40000	66.9	-	100.0		
			60000	65.4	-	100.0		
DA2FEB84	19/ 2/1984	48	100	95.8	99.7	100.0		
			500	94.8	99.6	100.0		
			1000	94.1	99.5	100.0		
			2500	93.1	99.4	100.0		
			5000	93.1	99.4	100.0		
			10000	93.1	99.4	100.0		
DO2JUL85	10/ 7/1985	48	100	88.3	96.0	100.0		
			500	88.2	96.3	100.0		
			1000	88.2	96.3	100.0		
			2500	88.5	96.6	100.0		
			5000	88.9	96.8	100.0		
			10000	89.1	96.9	100.0		
			20000	88.3	96.5	100.0		
			40000	88.2	95.8	100.0		
			60000	88.2	95.8	100.0		
SY1AUG86	6/ 8/1986	24	100	100.0				
			500	100.0				
			1000	100.0				
			2500	100.0				
			5000	100.0				
			10000	100.0				
			20000	100.0				
SY4AUG86	7/ 8/1986	96	100	55.0	68.4	82.2	98.7	100.0
			500	58.1	76.7	86.8	99.4	100.0
			1000	58.5	75.9	86.2	99.0	100.0
			2500	58.6	72.9	84.4	98.7	100.0
			5000	59.8	72.3	84.1	98.7	100.0
			10000	61.0	73.2	84.6	98.8	100.0
			20000	61.0	73.2	84.6	98.8	100.0

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
SP4MAY87	12/ 5/1987	96	100	61.3	64.4	79.6	89.8	100.0
			500	64.3	68.3	81.4	90.4	100.0
			1000	62.9	66.6	79.6	88.7	100.0
			2500	64.5	68.9	80.0	88.7	100.0
			5000	61.4	66.8	76.9	87.2	100.0
			10000	63.9	70.0	78.1	88.7	100.0
			20000	63.7	70.0	78.1	88.3	100.0
NY3APR89	3/ 4/1989	72	100	85.4	100.0	100.0	100.0	
			500	85.6	100.0	100.0	100.0	
			1000	89.1	100.0	100.0	100.0	
			2500	89.9	100.0	100.0	100.0	
			5000	89.4	99.6	99.6	100.0	
			10000	89.6	98.5	98.5	100.0	
			20000	88.7	97.7	97.7	100.0	
			40000	86.3	93.8	93.8	100.0	
60000	84.5	91.8	91.8	100.0				
NE3FEB90	4/ 2/1990	72	100	57.4	68.5	94.8	100.0	
			500	59.9	70.2	95.6	100.0	
			1000	59.2	69.7	95.5	100.0	
			2500	57.9	68.8	95.2	100.0	
			5000	56.7	68.3	94.9	100.0	
			10000	55.1	67.2	93.7	100.0	
			20000	53.8	67.7	93.4	100.0	
			40000	52.8	67.8	93.0	100.0	
NY7APR90	14/ 4/1990	168	100	34.1	37.9	40.1	59.4	71.1
			500	35.1	37.6	39.1	54.5	72.1
			1000	37.4	37.4	37.4	54.1	71.6
			2500	36.0	36.0	36.2	56.2	69.4
			5000	33.5	35.1	38.3	56.4	65.7
			10000	31.2	36.8	40.1	59.4	67.3
			20000	30.8	39.0	43.9	61.3	70.5
			40000	32.9	43.7	48.5	60.9	72.8
60000	33.3	46.4	52.4	61.1	75.3			

Table 3. (Cont.)

STORM NAME	DATE ENDED	DURATION (hours)	AREA (km²)	24 h %	36 h %	48 h %	72 h %	96 h %
GI3APR90	22/ 4/1990	72	100	78.6	89.7	100.0	100.0	
			500	77.8	90.2	99.8	100.0	
			1000	78.3	92.2	99.6	100.0	
			2500	77.6	92.0	99.4	100.0	
			5000	78.0	91.2	99.4	100.0	
			10000	79.8	93.5	99.4	100.0	
			20000	79.1	93.3	100.0	100.0	
			40000	80.4	93.8	99.7	100.0	
			60000	79.9	91.9	98.4	100.0	

5. SUMMARY

Mean rainfall depths at standard areas and maximum proportions of the total rainfall depth at standard durations and areas within 110 significant rainfall events in the southeast of Australia have been analysed. The locations of these rainstorms are listed in Table 1.

The mean rainfall depth for each rainstorm at up to ten standard areas covering the rainfall extent are presented in Table 2.

The maximum proportions of the total rainfall depth within standard durations and at the standard areas for each of the events is given at intervals up to the duration of the rainfall or to 96 hours, whichever is the shorter. These are presented in Table 3.

The tables in the Appendix give information about the sources of data used in deriving Tables 2 and 3. The number of daily and 3-hourly or pluviograph stations that provided data for deriving the temporal distributions, along with the weights given to the 3-hourly or pluviograph data, are listed in Table A1. Table A2 gives the location of those 3-hourly reporting stations with an alphabetical code in Table A1, and Table A3 lists the reports and studies used to supplement data from the Bureau of Meteorology computer archive.

6. REFERENCES

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Thiessen, A.H. (1911). 'Precipitation Averages for Large Areas'. *Monthly Weather Review*, Vol. 39, pp 1082-1084.

APPENDIX

INFORMATION ABOUT THE DATA USED IN DERIVING TEMPORAL PATTERNS

The method of utilising any available temporal data was an important component in deriving the temporal distributions used in calculating the maximum percentages of the total rainfall as described in Section 4. Australia has a very sparse network of pluviograph stations and some of the events in this catalogue date from the time prior to their introduction. This meant that maximum information had to be extracted from any available data.

Any 3-hourly or pluviograph data or other useful information in rainstorm reports was subjectively weighted as a simple proportion of one. The geographical position of the site for which temporal information was available within the rainfall extent, and the match between the daily temporal distribution at the site and that calculated for the rainstorm, were used as a guide. The weights for each source of temporal information plus the number of daily rainfall stations used, are given in Table A1.

Some 3-hourly data are not 'real' but were constructed for a site or region from past storm studies (see Tables A2 and A3).

Key to Table A1.

Storm Name:

As for Table 1.

Area:

As for Table 3.

Stations - Daily:

The number of daily rainfall observing stations (usually Bureau of Meteorology stations) within the parallelograms. These stations were thoroughly checked and any doubtful observations were eliminated.

If a rainstorm lasted for only one day, no daily station data was required. This is coded by -99.

Stations - 3-hourly:

The number of sources of 3-hourly rainfall data used to derive the temporal patterns. They were usually located within or near the boundaries of the parallelograms. Some of these 3-hourly patterns were constructed from past studies of the storm.

Weighting of 3-Hourly Stations - No.:

The following numbering system is used in Table A1.

- (i) A five digit number preceding the weighting is the station number as assigned to official Bureau of Meteorology stations.

- (ii) A six digit number starting with a '5' indicates that the gauge is owned by another authority.
- (iii) A three digit station number or a six digit station number starting with a '6' indicates that the gauge belongs to the Hydro-Electric Commission of Tasmania. These mostly duplicate Bureau of Meteorology sites.
- (iv) The location of sites or regions coded alphabetically in Table A1 are given in Table A2. The sources of the information to construct the patterns are given in Table A3.

Weighting of 3-Hourly Stations - Weight:

The weight given to each set of temporal pattern data for a rainstorm as a proportion of one.

Table A1. Number of Observation Sites and the Weight Assigned to the 3-Hourly Temporal Pattern Information for Each Standard Area in Each Storm.

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS					
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight
ST4APR89	40000	53	1	A	1.000				
	20000	36	1	A	1.000				
	10000	30	1	A	1.000				
	5000	25	1	A	1.000				
	2500	14	1	A	1.000				
	1000	7	1	A	1.000				
	500	7	1	A	1.000				
	100	3	1	A	1.000				
WV1MAR10	60000	-99	1	B	1.000				
	40000	-99	1	B	1.000				
	20000	-99	1	B	1.000				
	10000	-99	1	B	1.000				
	5000	-99	1	B	1.000				
	2500	-99	1	B	1.000				
	1000	-99	1	B	1.000				
	500	-99	1	B	1.000				
100	-99	1	B	1.000					
WI3MAR21	60000	46	1	23000	1.000				
	40000	40	1	23000	1.000				
	20000	35	1	23000	1.000				
	10000	12	1	23000	1.000				
	5000	10	1	23000	1.000				
	2500	7	1	23000	1.000				
	1000	4	1	23000	1.000				
	500	2	1	23000	1.000				
	100	1	1	23000	1.000				
BU1MAY25	10000	-99	1	C	1.000				
	5000	-99	1	C	1.000				
	2500	-99	1	C	1.000				
	1000	-99	1	C	1.000				
	500	-99	1	C	1.000				
	100	-99	1	C	1.000				
BU4MAY25	60000	35	1	C	1.000				
	40000	35	1	C	1.000				
	20000	33	1	C	1.000				
	10000	23	1	C	1.000				
	5000	16	1	C	1.000				
	2500	12	1	C	1.000				
	1000	7	1	C	1.000				
	500	6	1	C	1.000				
	100	2	1	C	1.000				

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS							
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight
MT2APR29	60000	106	1	94029	1.000						
	40000	82	1	94029	1.000						
	20000	74	1	94029	1.000						
	10000	36	1	94029	1.000						
	5000	22	1	94029	1.000						
	2500	14	1	94029	1.000						
	1000	8	1	94029	1.000						
	500	4	1	94029	1.000						
	100	3	1	94029	1.000						
WD2DEC30	20000	72	4	86071	0.050	86096	0.050	87029	0.100	87061	0.800
	10000	47	4	86071	0.050	86096	0.050	87029	0.100	87061	0.800
	5000	31	4	86071	0.050	86096	0.050	87029	0.500	87061	0.400
	2500	24	2	87029	0.600	87061	0.400				
	1000	17	2	87029	0.600	87061	0.400				
	500	11	2	87029	0.800	87061	0.200				
	100	5	2	87029	0.800	87061	0.200				
TH1FEB31	60000	-99	1	40214	1.000						
	40000	-99	1	40214	1.000						
	20000	-99	1	40214	1.000						
	10000	-99	1	40214	1.000						
	5000	-99	1	40214	1.000						
	2500	-99	1	40214	1.000						
	1000	-99	1	40214	1.000						
	500	-99	1	40214	1.000						
	100	-99	1	40214	1.000						
AV2DEC33	60000	122	4	86071	0.250	87029	0.250	87036	0.250	87061	0.250
	40000	141	4	86071	0.250	87029	0.250	87036	0.250	87061	0.250
	20000	87	3	87029	0.340	87036	0.330	87061	0.330		
	10000	51	2	87029	0.400	87036	0.600				
	5000	37	2	87029	0.200	87036	0.800				
	2500	24	1	87036	1.000						
	1000	10	1	87036	1.000						
	500	7	1	87036	1.000						
	100	3	1	87036	1.000						
WA5DEC34	20000	101	5	86096	0.100	86999	0.500	87029	0.100	87036	0.100
				87061	0.200						
	10000	49	5	86096	0.100	86999	0.500	87029	0.100	87036	0.100
				87061	0.200						
	5000	33	5	86096	0.100	86999	0.500	87029	0.100	87936	0.100
				87061	0.200						
	2500	24	2	86096	0.500	86999	0.500				
	1000	12	2	86096	0.500	86999	0.500				
	500	7	2	86096	0.500	86999	0.500				
	100	3	2	86096	0.500	86999	0.500				

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS							
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight
TA6MAR39	60000	98	1	D	1.000						
	40000	115	1	D	1.000						
	20000	68	1	D	1.000						
	10000	47	1	D	1.000						
	5000	27	1	D	1.000						
	2500	18	1	D	1.000						
	1000	8	1	D	1.000						
	500	6	1	D	1.000						
100	3	1	D	1.000							
FP3JAN41	40000	67	1	23000	1.000						
	20000	75	1	23000	1.000						
	10000	50	1	23000	1.000						
	5000	31	1	23000	1.000						
	2500	19	1	23000	1.000						
	1000	8	1	23000	1.000						
	500	6	1	23000	1.000						
	100	3	1	23000	1.000						
WO2MAY43	20000	61	1	E	1.000						
	10000	44	1	E	1.000						
	5000	22	1	E	1.000						
	2500	17	1	E	1.000						
	1000	7	1	E	1.000						
	500	6	1	E	1.000						
	100	3	1	E	1.000						
WO5MAY43	20000	50	3	E	0.400	F	0.300	66062	0.300		
	10000	35	2	E	0.500	F	0.500				
	5000	19	2	E	0.500	F	0.500				
	2500	10	2	E	0.500	F	0.500				
	1000	5	2	E	0.500	F	0.500				
	500	2	1	E	1.000						
	100	1	1	E	1.000						
YP2FEB46	60000	41	1	23000	1.000						
	40000	32	1	23000	1.000						
	20000	22	1	23000	1.000						
	10000	18	1	23000	1.000						
	5000	11	1	23000	1.000						
	2500	5	1	23000	1.000						
	1000	2	1	23000	1.000						
	500	2	1	23000	1.000						
	100	2	1	23000	1.000						
MO1FEB46	60000	102	3	91009	0.500	91049	0.200	91104	0.300		
	40000	112	3	91009	0.500	91049	0.200	91104	0.300		
	20000	79	3	91009	0.500	91049	0.200	91104	0.300		
	10000	50	3	91009	0.500	91049	0.200	91104	0.300		
	5000	31	3	91009	0.600	91049	0.150	91104	0.250		
	2500	19	3	91009	0.600	91049	0.150	91104	0.250		
	1000	11	3	91009	0.700	91049	0.100	91104	0.200		
	500	7	3	91009	0.700	91049	0.100	91104	0.200		
	100	3	3	91009	0.700	91049	0.100	91104	0.200		

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS									
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight		
TH1JAN47	40000	-99	1	40214	1.000								
	20000	-99	1	40214	1.000								
	10000	-99	1	40214	1.000								
	5000	-99	1	40214	1.000								
	2500	-99	1	40214	1.000								
	1000	-99	1	40214	1.000								
	500	-99	1	40214	1.000								
	100	-99	1	40214	1.000								
RA5JUN49	40000	84	2	G	0.500	H	0.500						
	20000	70	2	G	0.500	H	0.500						
	10000	37	2	G	0.500	H	0.500						
	5000	27	2	G	0.500	H	0.500						
	2500	19	2	G	0.500	H	0.500						
	1000	13	3	G	0.450	H	0.450	66063	0.100				
	500	9	3	G	0.400	H	0.400	66063	0.200				
	100	3	3	G	0.350	H	0.350	66063	0.300				
CA7MAR50	60000	84	3	70015	0.400	74114	0.500	63023	0.100				
	40000	70	3	70015	0.400	74114	0.500	63023	0.100				
	20000	41	3	70015	0.400	74114	0.500	63023	0.100				
	10000	34	1	70015	1.000								
	5000	24	1	70015	1.000								
	2500	17	1	70015	1.000								
	1000	9	1	70015	1.000								
	500	3	1	70015	1.000								
	100	1	1	70015	1.000								
WA3FEB51	20000	51	1	85103	1.000								
	10000	31	1	85103	1.000								
	5000	22	1	85103	1.000								
	2500	15	1	85103	1.000								
	1000	8	1	85103	1.000								
	500	6	1	85103	1.000								
	100	3	1	85103	1.000								
VI5JUN52	60000	106	5	85103	0.340	86038	0.080	86096	0.080	86999	0.080		
				90087	0.340	686038	0.080						
	40000	134	5	85103	0.520	86038	0.120	86096	0.120	86999	0.120		
				686038	0.120								
	20000	59	1	85103	1.000								
	10000	38	1	85103	1.000								
	5000	32	1	85103	1.000								
	2500	23	1	85103	1.000								
	1000	13	1	85103	1.000								
	500	6	1	85103	1.000								
	100	3	1	85103	1.000								
HA2FEB54	20000	47	2	58025	0.500	60076	0.500						
	10000	30	2	58025	0.500	60076	0.500						
	5000	23	2	58025	0.400	60076	0.600						
	2500	18	2	58025	0.400	60076	0.600						
	1000	14	2	58025	0.300	60076	0.700						
	500	7	2	58025	0.300	60076	0.700						
	100	3	2	58025	0.200	60076	0.800						

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS					
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight
TH1FEB54	10000	52	1	58013	1.000				
	5000	38	1	58013	1.000				
	2500	23	1	58013	1.000				
	1000	17	1	58013	1.000				
	500	11	1	58013	1.000				
	100	4	1	58013	1.000				
DO5FEB54	10000	33	1	58025	0.500	60076	0.500		
	5000	24	1	58025	0.500	60076	0.500		
	2500	17	1	58025	0.500	60076	0.500		
	1000	13	1	58025	0.500	60076	0.500		
	500	7	1	58025	0.500	60076	0.500		
	100	3	1	58025	0.500	60076	0.500		
DU1FEB55	60000	-99	1	I	0.800	55024	0.200		
	40000	-99	1	I	0.800	55024	0.200		
	20000	-99	1	I	0.900	55024	0.100		
	10000	-99	1	I	0.900	55024	0.100		
	5000	-99	1	I	1.000				
	2500	-99	1	I	1.000				
	1000	-99	1	I	1.000				
	500	-99	1	I	1.000				
	100	-99	1	I	1.000				
DU2FEB55	60000	102	2	I	0.800	55024	0.200		
	40000	67	2	I	0.800	55024	0.200		
	20000	37	2	I	0.900	55024	0.100		
	10000	21	2	I	0.900	55024	0.100		
	5000	14	1	I	1.000				
	2500	9	1	I	1.000				
	1000	5	1	I	1.000				
	500	2	1	I	1.000				
	100	1	1	I	1.000				
DU3FEB55	60000	100	1	55024	1.000				
	40000	66	1	55024	1.000				
	20000	37	1	55024	1.000				
	10000	21	1	55024	1.000				
	5000	14	1	55024	1.000				
	2500	10	1	55024	1.000				
	1000	5	1	55024	1.000				
	500	2	1	55024	1.000				
	100	1	1	55024	1.000				
DU4FEB55	60000	150	1	55024	1.000				
	40000	96	1	55024	1.000				
	20000	67	1	55024	1.000				
	10000	37	1	55024	1.000				
	5000	26	1	55024	1.000				
	2500	13	1	55024	1.000				
	1000	10	1	55024	1.000				
	500	5	1	55024	1.000				
	100	2	1	55024	1.000				

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS							
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight
DO1JAN59	10000	41	3	59004	0.400	59013	0.400	59017	0.200		
	5000	24	2	59004	0.500	59013	0.500				
	2500	16	2	59004	0.500	59013	0.500				
	1000	10	2	59004	0.500	59013	0.500				
	500	8	2	59004	0.500	59013	0.500				
	100	3	1	59013	1.000						
DO5JAN59	10000	41	3	59004	0.400	59013	0.400	59017	0.200		
	5000	24	2	59004	0.500	59013	0.500				
	2500	16	2	59004	0.500	59013	0.500				
	1000	10	2	59004	0.500	59013	0.500				
	500	8	2	59004	0.500	59013	0.500				
	100	3	1	59013	1.000						
BA1APR59	20000	-99	1	63253	1.000						
	10000	-99	1	63253	1.000						
	5000	-99	1	63253	1.000						
	2500	-99	1	63253	1.000						
	1000	-99	1	63253	1.000						
	500	-99	1	63253	1.000						
	100	-99	1	63253	1.000						
SE2APR60	40000	129	11	92019	0.09	92042	0.09	92079	0.09	93006	0.09
				94029	0.09	591006	0.09	596003	0.100	597003	0.09
				597062	0.09	691104	0.09	694008	0.09		
	20000	85	7	92019	0.100	92042	0.100	92079	0.100	93006	0.100
				591006	0.100	596003	0.400	691104	0.100		
	10000	67	6	92019	0.080	92079	0.080	93006	0.080	591006	0.080
				596003	0.600	691104	0.080				
	5000	47	4	92019	0.100	92079	0.100	93006	0.100	596003	0.700
	2500	34	2	93006	0.200	596003	0.800				
	1000	21	2	93006	0.200	596003	0.800				
	500	9	2	93006	0.200	596003	0.800				
	100	2	2	93006	0.200	596003	0.800				
	WO3NOV61	10000	42	3	66037	0.100	66062	0.700	68076	0.200	
5000		30	3	66037	0.200	66062	0.700	68076	0.100		
2500		17	2	66037	0.200	66062	0.800				
1000		11	2	66037	0.200	66062	0.800				
500		5	2	66037	0.200	66062	0.800				
100		2	2	66037	0.200	66062	0.800				
DO4MAY63	20000	63	2	57033	0.500	57104	0.500				
	10000	50	2	57033	0.200	59013	0.800				
	5000	32	2	57033	0.300	59013	0.700				
	2500	20	2	57033	0.400	59013	0.600				
	1000	9	2	57033	0.600	59013	0.400				
	500	3	2	57033	0.700	59013	0.300				
	100	2	2	57033	0.800	59013	0.200				

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS										
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight			
BL3JUN64	60000	84	11	61142	0.090	61152	0.090	61240	0.090	63108	0.090			
				66037	0.090	66062	0.090	66063	0.090	67033	0.100			
				68117	0.090	68131	0.090	68187	0.090					
	40000	62	11	61142	0.090	61152	0.090	61240	0.090	63108	0.090			
				66037	0.090	66062	0.090	66063	0.090	67033	0.100			
				68117	0.090	68131	0.090	68187	0.090					
	20000	47	5	66062	0.100	67033	0.500	68117	0.100	68131	0.100			
				68187	0.200									
	10000	79	5	66062	0.100	67033	0.500	68117	0.100	68131	0.100			
				68187	0.200									
	5000	43	3	68117	0.200	68131	0.500	68187	0.300					
	2500	37	3	68117	0.200	68131	0.500	68187	0.300					
	1000	17	3	68117	0.500	68131	0.300	68187	0.200					
	500	12	3	68117	0.500	68131	0.300	68187	0.200					
100	4	3	68117	0.500	68131	0.300	68187	0.200						
LA2FEB69	60000	88	1	23785	1.000									
	40000	73	1	23785	1.000									
	20000	41	1	23785	1.000									
	10000	25	1	23785	1.000									
	5000	15	1	23785	1.000									
	2500	11	1	23785	1.000									
	1000	5	1	23785	1.000									
	500	4	1	23785	1.000									
	100	1	1	23785	1.000									
BD2MAY69	60000	130	30	91099	0.037	91104	0.019	91194	0.037	91198	0.037			
				92011	0.019	92019	0.037	92042	0.037	92079	0.037			
				93027	0.037	94008	0.010	96005	0.037	96014	0.037			
				96015	0.037	96027	0.037	96058	0.037	97008	0.037			
				97013	0.037	97050	0.037	97051	0.037	595000	0.037			
				596000	0.037	596001	0.037	596002	0.037	596007	0.037			
				596012	0.037	596045	0.037	597022	0.037	597037	0.037			
				691104	0.018	694008	0.009							
				40000	182	19	91104	0.031	91194	0.062	91198	0.062	92011	0.030
							92019	0.062	92042	0.062	92079	0.062	93027	0.062
	94008	0.020	96014				0.062	96058	0.062	595000	0.062			
	596000	0.062	596001				0.062	596007	0.062	596012	0.062			
	596045	0.062	691104				0.031	694008	0.020					
	20000	88	10	91104	0.050	91194	0.140	91198	0.140	92011	0.100			
				92019	0.140	92042	0.140	92079	0.140	94008	0.050			
				691104	0.050	694008	0.050							
	10000	48	5	91194	0.200	91198	0.200	92019	0.200	92042	0.200			
				92079	0.200									
	5000	28	3	91194	0.350	91198	0.300	92042	0.350					
	2500	17	2	91194	0.500	92042	0.500							
	1000	10	2	91194	0.500	92042	0.500							
	500	8	1	92042	1.000									
	100	5	1	92042	1.000									

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS								
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight	
LI3AUG70	60000	125	31	613	0.033	91009	0.033	91099	0.033	91104	0.032	
				91179	0.032	91194	0.032	91198	0.032	92019	0.032	
				92042	0.032	92079	0.032	96005	0.033	96014	0.032	
				96015	0.032	96027	0.032	96058	0.032	97008	0.032	
				97051	0.032	591000	0.033	591004	0.033	596000	0.032	
				596001	0.032	596002	0.032	596005	0.033	596007	0.033	
				596012	0.032	596045	0.032	596047	0.032	597004	0.032	
				597010	0.032	597037	0.032	691104	0.032			
	40000	168	25	613	0.040	91009	0.040	91099	0.040	91104	0.040	
				91179	0.040	91194	0.040	91198	0.040	92019	0.040	
				92042	0.040	96005	0.040	96015	0.040	96027	0.040	
				96058	0.040	97008	0.040	591000	0.040	591004	0.040	
				596001	0.040	596005	0.040	596007	0.040	596012	0.040	
				596045	0.040	596047	0.040	597004	0.040	597010	0.040	
				691104	0.040							
				20000	87	15	613	0.070	91009	0.070	91099	0.070
	10000	52	10	96005	0.070	96058	0.070	591000	0.070	591004	0.070	
				596001	0.070	596005	0.070	596007	0.070	596012	0.070	
				596045	0.055	597004	0.070	597010	0.050			
				613	0.100	91009	0.100	91099	0.100	96005	0.100	
	5000	39	7	591000	0.100	591004	0.100	596001	0.100	596005	0.100	
				613	0.175	91009	0.100	91099	0.150	96005	0.150	
				591000	0.150	591004	0.175	596005	0.100			
	2500	22	4	613	0.300	96005	0.200	591000	0.200	591004	0.300	
	1000	13	4	613	0.300	96005	0.200	591000	0.200	591004	0.300	
	500	8	2	613	0.500	591004	0.500					
	100	3	2	613	0.500	591004	0.500					
	VA1JAN71	20000	67	6	84078	0.250	85034	0.200	85072	0.100	85088	0.250
85103					0.100	85264	0.100					
10000		35	6	84078	0.200	85034	0.250	85072	0.100	85088	0.250	
				85103	0.100	85264	0.100					
5000		13	5	85034	0.300	85072	0.100	85088	0.300	85103	0.100	
				85170	0.200							
2500		11	4	85034	0.400	85088	0.300	85103	0.200	85170	0.100	
1000		5	2	85034	0.500	85088	0.500					
500		2	2	85034	0.500	85088	0.500					
100		1	2	85034	0.500	85088	0.500					
ED5FEB71		10000	43	2	69102	0.800	70015	0.200				
		5000	24	2	69102	0.800	70015	0.200				
	2500	16	2	69102	0.800	70015	0.200					
	1000	12	1	69102	1.000							
	500	8	1	69102	1.000							
	100	5	1	69102	1.000							

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS							
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight
TH1JAN74	60000	-99	1	52062	1.000						
	40000	-99	1	52062	1.000						
	20000	-99	1	52062	1.000						
	10000	-99	1	52062	1.000						
	5000	-99	1	52062	1.000						
	2500	-99	1	52062	1.000						
	1000	-99	1	52062	1.000						
	500	-99	1	52062	1.000						
	100	-99	1	52062	1.000						
TH2MAR74	20000	91	3	58044	0.300	58076	0.500	59040	0.200		
	10000	48	3	58044	0.300	58076	0.500	59040	0.200		
	5000	27	2	58044	0.800	58076	0.200				
	2500	17	1	58044	1.000						
	1000	11	1	58044	1.000						
	500	7	1	58044	1.000						
	100	3	1	58044	1.000						
TH5MAR74	40000	136	14	40052	0.080	40160	0.080	40192	0.050	40197	0.080
				56059	0.050	58026	0.050	58044	0.080	58072	0.080
				58076	0.080	58081	0.050	58109	0.080	58129	0.080
				58131	0.080	58158	0.080				
	20000	80	12	40052	0.100	40160	0.050	40192	0.025	40197	0.100
				58044	0.120	58072	0.050	58076	0.120	58081	0.025
				58109	0.050	58129	0.120	58131	0.120	58158	0.120
				58158	0.160	58158	0.160				
	10000	50	9	40052	0.080	40192	0.020	58044	0.120	58072	0.080
				58076	0.160	58081	0.020	58129	0.120	58131	0.160
				58158	0.160						
				58158	0.160						
	5000	32	6	58044	0.200	58072	0.200	58109	0.100	58129	0.200
				58131	0.200	58158	0.100				
	2500	23	5	58044	0.100	58072	0.200	58129	0.200	58131	0.400
				58158	0.100						
1000	11	2	58072	0.200	58131	0.800					
			58131	1.000							
			58131	1.000							
			58131	1.000							
500	7	1	58131	1.000							
			58131	1.000							
100	4	1	58131	1.000							
NC5MAR74	20000	77	1	59040	1.000						
	10000	53	1	59040	1.000						
	5000	35	1	59040	1.000						
	2500	18	1	59040	1.000						
	1000	11	1	59040	1.000						
	500	8		59040	0.800	60030	0.200				
	100	2	1	59040	1.000						
GE2MAR74	5000	24	3	91194	0.340	92042	0.330	92092	0.330		
	2500	16	3	91194	0.300	92042	0.400	92092	0.300		
	1000	8	3	91194	0.300	92042	0.400	92092	0.300		
	500	6	3	91194	0.200	92042	0.500	92092	0.300		
	100	3	3	91194	0.200	92042	0.500	92092	0.300		

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS								
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight	
CH2APR74	10000	42	4	57105	0.100	58076	0.100	59000	0.300	59040	0.500	
	5000	30	4	57105	0.100	58076	0.100	59000	0.400	59040	0.400	
	2500	22	4	57105	0.100	58076	0.100	59000	0.700	59040	0.300	
	1000	14	4	57105	0.100	58076	0.100	59000	0.600	59040	0.200	
	500	10	4	57105	0.100	58076	0.100	59000	0.500	59040	0.300	
	100	5	4	57105	0.100	58076	0.100	59000	0.500	59040	0.300	
BU3AUG74	60000	34	1	70014	1.000							
	40000	44	1	70014	1.000							
	20000	45	1	70014	1.000							
	10000	40	1	70014	1.000							
	5000	25	1	70014	1.000							
	2500	19	1	70014	1.000							
	1000	5	1	70014	1.000							
	500	4	1	70014	1.000							
100	1	1	70014	1.000								
LE1JUN75	40000	191	16	61174	0.071	61178	0.071	61211	0.072	61238	0.071	
				61336	0.072	66037	0.036	66062	0.036	66137	0.072	
				68076	0.071	68117	0.071	68131	0.071	68195	0.071	
				70012	0.071	666037	0.036	666062	0.036	667033	0.072	
	20000	111	8	61211	0.170	61336	0.170	66037	0.080	66062	0.080	
				66137	0.170	666037	0.080	666062	0.080	667033	0.170	
	10000	66	8	61211	0.170	61336	0.170	66037	0.080	66062	0.080	
				66137	0.170	666037	0.080	666062	0.080	667033	0.170	
	5000	30	4	61211	0.250	61336	0.250	66137	0.250	667033	0.250	
				2500	28	2	61211	0.500	667033	0.500		
				1000	14	2	61211	0.500	667033	0.500		
				500	7	2	61211	0.500	667033	0.500		
				100	3	2	61211	0.500	667033	0.500		
GG5OCT76	20000	53	1	69000	1.000							
	10000	37	1	69000	1.000							
	5000	23	1	69000	1.000							
	2500	13	1	69000	1.000							
	1000	6	1	69000	1.000							
	500	4	1	69000	1.000							
	100	4	2	69000	0.500	84122	0.500					

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS								
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight	
RA1MAR77	40000	118	23	J	0.046	K	0.046	613	0.046	91009	0.046	
				91079	0.046	91099	0.046	91104	0.023	91186	0.046	
				91194	0.046	91198	0.046	92042	0.042	93027	0.046	
				96005	0.046	96044	0.042	96046	0.046	591000	0.046	
				591004	0.046	596001	0.046	596012	0.046	597004	0.046	
	597010	0.042	597022	0.046	691104	0.023						
	20000	90	18	J	0.060	K	0.060	613	0.060	91009	0.060	
	91079	0.054	91099	0.060	91104	0.030	91186	0.060				
	91198	0.060	93027	0.060	96005	0.060	96046	0.053				
	591000	0.060	591004	0.060	596001	0.060	596012	0.060				
	597022	0.053	691104	0.030								
	10000	59	11	J	0.100	K	0.100	613	0.100	91009	0.100	
	91104	0.050	91186	0.100	93027	0.100	96046	0.100				
	596001	0.100	596012	0.100	691104	0.050						
	5000	44	6	J	0.200	91009	0.200	91186	0.200	93027	0.100	
	596001	0.200	596012	0.100								
	2500	24	3	J	0.300	91009	0.350	91186	0.350			
	1000	14	2	91009	0.500	91186	0.500					
	500	10	1	91186	1.000							
	100	4	1	91186	1.000							
ME1APR77	10000	60	5	86038	0.100	86282	0.100	87031	0.400	87065	0.200	
				87104	0.200							
	5000	60	5	86038	0.100	86282	0.100	87031	0.400	87065	0.200	
	87104	0.200										
	2500	30	5	86038	0.100	86282	0.100	87031	0.400	87065	0.200	
	87104	0.200										
	1000	11	5	86038	0.100	86282	0.100	87031	0.600	87065	0.100	
	87104	0.100										
	500	8	3	87031	0.800	87065	0.100	87104	0.100			
	100	6	1	87031	1.000							
	WO3MAR78	10000	56	3	68117	0.700	68131	0.200	69049	0.100		
		5000	42	2	68117	0.800	68131	0.200				
2500		30	2	68117	0.800	68131	0.200					
1000		15	1	68117	1.000							
500		10	1	68117	1.000							
100		4	1	68117	1.000							
MW4MAR78	40000	173	22	61078	0.055	61174	0.055	61211	0.060	61233	0.055	
				61238	0.055	61309	0.055	61311	0.055	63039	0.060	
				63108	0.055	66037	0.030	66062	0.030	66137	0.055	
				67033	0.030	68076	0.030	68117	0.055	68131	0.055	
				68195	0.055	70012	0.055	666037	0.025	666062	0.025	
	667033	0.025	668076	0.025								
	20000	111	12	61211	0.100	63039	0.100	63108	0.100	66037	0.050	
	66062	0.050	66137	0.100	67033	0.050	68117	0.100				
	68131	0.100	68195	0.100	666062	0.050	667033	0.050				
	10000	47	4	61211	0.250	63039	0.250	63108	0.250	67033	0.250	
	5000	25	4	61211	0.250	63039	0.250	63108	0.250	67033	0.250	
	2500	21	2	61211	0.500	63039	0.500					
	1000	11	1	63039	1.000							
	500	6	1	63039	1.000							
	100	4	1	63039	1.000							

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS									
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight		
CA2APR78	20000	42	1	84005	1.000								
	10000	24	1	84005	1.000								
	5000	15	1	84005	1.000								
	2500	10	1	84005	1.000								
	1000	6	1	84005	1.000								
	500	4	1	84005	1.000								
	100	2	1	84005	1.000								
TA2JUN78	10000	51	5	87017	0.200	87075	0.200	87154	0.200	89094	0.200		
				90087	0.200								
	5000	31	2	89094	0.500	90087	0.500						
	2500	15	2	89094	0.200	90087	0.800						
	1000	10	1	90087	1.000								
	500	6	1	90087	1.000								
	100	3	1	90087	1.000								
SC1FEB81	5000	-99	1	L	1.000								
	2500	-99	1	L	1.000								
	1000	-99	1	L	1.000								
	500	-99	1	L	1.000								
	100	-99	1	L	1.000								
OB2MAY81	60000	122	2	84078	0.700	85072	0.300						
	40000	94	2	84078	0.700	85072	0.300						
	20000	48	2	84078	0.700	85072	0.300						
	10000	32	2	84078	0.700	85072	0.300						
	5000	20	2	84078	0.700	85072	0.300						
	2500	14	2	84078	0.700	85072	0.300						
	1000	5	1	84078	1.000								
	500	4	1	84078	1.000								
	100	2	1	84078	1.000								
CO3OCT82	60000	146	1	60106	1.000								
	40000	101	1	60106	1.000								
	20000	54	1	60106	1.000								
	10000	42	1	60106	1.000								
	5000	18	1	60106	1.000								
	2500	15	1	60106	1.000								
	1000	9	1	60106	1.000								
	500	5	1	60106	1.000								
	100	3	1	60106	1.000								
	DT1MAR83	5000	-99	1	23321	1.000							
2500		-99	1	23321	1.000								
1000		-99	1	23321	1.000								
500		-99	1	23321	1.000								
100		-99	1	23321	1.000								
DA2FEB84	10000	50	3	M	0.400	N	0.300	O	0.300				
	5000	37	3	M	0.400	N	0.300	O	0.300				
	2500	27	3	M	0.400	N	0.300	O	0.300				
	1000	14	3	M	0.500	N	0.250	O	0.250				
	500	8	3	M	0.600	N	0.200	O	0.200				
	100	4	3	M	0.700	N	0.150	O	0.150				

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS									
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight		
DO2JUL85	40000	116	1	59040	1.000								
	20000	69	1	59040	1.000								
	10000	42	1	59040	1.000								
	5000	32	1	59040	1.000								
	2500	22	1	59040	1.000								
	1000	15	1	59040	1.000								
	500	12	1	59040	1.000								
	100	4	1	59040	1.000								
SY1AUG86	10000	-99	1	66062	1.000								
	5000	-99	1	66062	1.000								
	2500	-99	1	66062	1.000								
	1000	-99	1	66062	1.000								
	500	-99	1	66062	1.000								
	100	-99	1	66062	1.000								
SY4AUG86	20000	108	1	666062	1.000								
	10000	68	1	666062	1.000								
	5000	38	1	666062	1.000								
	2500	21	1	666062	1.000								
	1000	13	1	666062	1.000								
	500	6	1	666062	1.000								
	100	3	1	666062	1.000								
SP4MAY87	20000	81	5	58072	0.100	58109	0.200	58113	0.400	58129	0.200		
				58131	0.100								
	10000	55	5	58072	0.100	58109	0.200	58113	0.400	58129	0.200		
				58131	0.100								
	5000	36	5	58072	0.100	58109	0.200	58113	0.400	58129	0.200		
				58131	0.100								
	2500	36	5	58072	0.100	58109	0.400	58113	0.200	58129	0.200		
				58131	0.100								
	1000	16	5	58072	0.100	58109	0.400	58113	0.200	58129	0.200		
				58131	0.100								
500	10	3	58109	0.300	58113	0.300	58129	0.400					
100	5	1	58109	0.250	58113	0.250	58129	0.500					
NY3APR89	60000	50	3	P	0.340	Q	0.330	R	0.330				
	40000	40	3	P	0.340	Q	0.330	R	0.330				
	20000	23	3	P	0.400	Q	0.400	R	0.200				
	10000	17	3	P	0.400	Q	0.400	R	0.200				
	5000	9	3	P	0.500	Q	0.400	R	0.100				
	2500	6	3	P	0.500	Q	0.400	R	0.100				
	1000	3	2	P	0.500	Q	0.500						
	500	3	1	P	1.000								
	100	2	1	P	1.000								

Table A1. (Cont.)

STORM NAME	AREA (km ²)	STATIONS		WEIGHTING OF 3-HOURLY STATIONS								
		Daily	3-Hourly	No.	Weight	No.	Weight	No.	Weight	No.	Weight	
NE3FEB90	60000	134	5	61078	0.100	66037	0.100	66062	0.100	66137	0.100	
				67033	0.600							
	40000	116	5	5	61078	0.100	66037	0.100	66062	0.100	66137	0.100
					67033	0.600						
	20000	98	5	5	61078	0.100	66037	0.125	66062	0.125	66137	0.125
					67033	0.500						
	10000	83	5	5	61078	0.100	66037	0.150	66062	0.150	66137	0.150
					67033	0.400						
	5000	56	5	5	61078	0.100	66037	0.150	66062	0.150	66137	0.150
					67033	0.400						
	2500	20	5	5	61078	0.100	66037	0.175	66062	0.175	66137	0.175
					67033	0.300						
	1000	13	5	5	61078	0.100	66037	0.200	66062	0.200	66137	0.200
					67033	0.200						
500	7	5	5	61078	0.100	66037	0.200	66062	0.200	66137	0.200	
				67033	0.200							
100	3	5	5	61078	0.100	66037	0.200	66062	0.200	66137	0.200	
				67033	0.200							
NY7APR90	60000	68	2	50121	0.500	51049	0.500					
	40000	51	2	50121	0.500	51049	0.500					
	20000	37	2	50121	0.500	51049	0.500					
	10000	22	2	50121	0.500	51049	0.500					
	5000	16	2	50121	0.500	51049	0.500					
	2500	9	2	50121	0.500	51049	0.500					
	1000	7	2	50121	0.500	51049	0.500					
	500	4	2	50121	0.500	51049	0.500					
100	1	2	50121	0.500	51049	0.500						
GI3ARP90	60000	109	14	83017	0.075	83033	0.075	83025	0.075	84005	0.075	
				84015	0.075	85034	0.075	85072	0.075	85072	0.075	
				85227	0.075	85240	0.075	85254	0.075	85269	0.075	
				85278	0.100	88023	0.075					
	40000	93	13	13	83017	0.080	83033	0.080	83025	0.080	84005	0.080
					84015	0.080	85034	0.080	85072	0.080	85072	0.080
					85227	0.080	85240	0.080	85254	0.080	85269	0.080
					85278	0.120						
	20000	51	10	10	83033	0.100	83025	0.100	84005	0.100	84015	0.100
					85034	0.100	85072	0.100	85254	0.100	85254	0.100
					85269	0.100	85278	0.200				
	10000	29	6	6	83033	0.100	84015	0.100	85034	0.200	85254	0.200
					85269	0.100	85278	0.300				
	5000	20	3	3	85034	0.200	85254	0.300	85278	0.500		
	2500	15	3	3	85034	0.300	85254	0.500	85278	0.200		
	1000	8	3	3	85034	0.600	85254	0.200	85278	0.200		
500	5	2	2	85034	0.200	85278	0.800					
100	1	1	1	85278	1.000							

Table A2. Sites or Regions of the Sources of Temporal Pattern Information Coded Alphabetically in Table A1.

Key to Table A2.

Storm : As for Table 1.

Code: Alphabetical code used in Table A1.

Region or Site: The region or site for which the 3-hourly temporal pattern was constructed. The source of information used to construct the patterns is given in Table A3.

STORM	CODE	REGION OR SITE
ST4APR89	A	Constructed from patterns at Gawler Junction, Turretfield and South Para River
WV1MAR10	B	Constructed from patterns given for Cairn Curran and Coliban Catchments.
BU1MAY25 BU4MAY25	C	Constructed from patterns given for the Murrumbidgee Catchment above Burrinjuck.
TA6MAR39	D	Constructed from patterns at stations in the Cheshunt and Yackandandah region, near Beechworth.
WO2MAY43	E	Shoalhaven
WO5MAY43	F	Kangaroo Catchment
RA5JUN49	G	Constructed from rainfall observations near the Warkworth Dam catchment and the 3-hourly weather observations at Rathmines.
	H	Constructed from rainfall observations near the Grahamstown Dam catchment and the 3-hourly weather observations at Nobby's Head.
DU1FEB55 DU2FEB55	I	Wellington
RA1MAR77	J	Golden Valley
	K	Lake Mackenzie
SC1FEB81	L	Eraring Power Station
DA2FEB84	M	Wongawilli
	N	Beth Salem
	O	Brogers No. 2
NY3APR89	P	Benah
	Q	Marrowombie
	R	Bogan Downs
		31.33°S 147.33°E
		31.10°S 147.13°E
		30.77°S 146.97°E
		Temporal patterns were constructed from reports from these three farms as collected by the NSW Regional Office of the Bureau of Meteorology.

Table A3. Reports and Studies Used to Supplement the Bureau of Meteorology Rainfall and Temporal Pattern Data

STORM	REFERENCE
ST4APR89	Estimation of Extreme Precipitation - Gawler Basin (1980). Unpublished report by the S.A. Regional Office of the Bureau of Meteorology prepared for the Electricity and Water Supply Dept of S.A.
UL4FEB98	Bureau of Meteorology (1970). Estimation of Extreme Precipitation - Shoalhaven Sub-Catchments. Unpublished report for Sauti (Aust) P/L. 5 pp.
WV1MAR10	Estimation of Probable Maximum Precipitation for Cairn Curran Reservoir Catchment Area and Catchments of Coliban Storages (August, 1985). Unpublished report prepared for the Rural Water Commission of Victoria by the Victorian Regional Office of the Bureau of Meteorology.
BU1MAY25 BU4MAY25	Bureau of Meteorology (1970). Estimation of Extreme Precipitation Over the Catchment of the Murrumbidgee River above Burrinjuck Dam. Unpublished report prepared for the Water Conservation and Irrigation Commission.
TA6MAR39	Estimation of Probable Maximum Precipitation for Cairn Curran Reservoir Catchment Area and Catchments of Coliban Storages (August, 1985). Unpublished report prepared for the Rural Water Commission of Victoria by the Victorian Regional Office of the Bureau of Meteorology.
WO2MAY43 WO5MAY43	Estimation of Extreme Precipitation for the Shoalhaven River Catchments. Unpublished Bureau of Meteorology report for the Water Conservation and Irrigation Commission of New South Wales.
RA5JUN49	Bureau of Meteorology (1966). Study for the Catchment of Warkworth Dam on the Wollombi River. Bureau of Meteorology (1978). Estimation of Extreme Precipitation Over the Catchment of Grahamstown Dam. Unpublished report for the Hunter District Water Board. 10 pp.
DU1FEB55 DU2FEB55 DU3FEB55 DU4FEB55	Bond, H. G. and Wiesner, C. J. (1955). The Floods of February 1955 in New South Wales. Aust. Met. Mag. 1-33
SE2APR60	Hydro-Electric Commission of Tasmania (1960). Rainstorm, April 20-23, 1960 in Southeast Australia. Unpublished internal report.
WO3NOV61	Moss, J. M. (1962). The Storm of November 1961. Unpublished Bureau of Meteorology report. 11pp.

Table A3. (Cont.)

STORM	REFERENCE
GE2MAR74	Bureau of Meteorology (1975). Storm of 22 March 1974 Portland-Fingal Municipalities Tasmania. 25 pp.
WO3MAR75	Armstrong, J. G. and Colquhoun, J. R. (1985). Intense Rainfall from the Thunderstorms Over the Sydney Metropolitan and Illawarra Districts - 10 and 11 March 1975. Bureau of Meteorology, Technical Report 19. 29 pp.
RA1MAR77	Pendlebury, S. F. and Hart, T. L. (1980). Heavy Rainfall in the Heybridge - Latrobe Area of Tasmania. Bureau of Meteorology Report. 31 pp.
ME1APR77	Melbourne and Metropolitan Board of Works (1977). Report on the Easter Storm 1977. Vol 1 - Rainfall. 46 pp.
SC1FEB81	Weatherex Meteorological Services (1981). Stony Creek Catchment Rainfall Study Storm of 6/7 Feb 1981. Unpublished report prepared for the Lake Macquarie Shire Council and the Toronto Flood Committee. 24 pp.
DA2FEB84	Shepherd, D. J. and Colquhoun, J. R. (1985). Meteorological Aspects of an Extraordinary Flash Flood Near Dapto, New South Wales. Aust. Met. Mag. Vol 33: 87-102.
SY1AUG86 SY4AUG86	Bureau of Meteorology (1986). A Report on the Heavy Rainfall Event in the Sydney Metropolitan Area over the Period 4 - 7 August 1986. Unpublished internal report. 13 pp.
NY3APR89	Bureau of Meteorology (1989). Unpublished report by the New South Wales Regional Office of the Bureau of Meteorology.
NY7APR90	Water Resources Commission NSW (1990). Report on the April 1990 Rainfall in the Nyngan Catchment. Internal report. 20 pp.