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RAINFALL, EVAPORATION AND DROUGHT-FREQUENCY

in South Australia

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By H. C. TRUMBLE,
Waite Agricultural . .
Research Institute

Rainfall, Evaporation and Drought-Frequency

in South Australia

THE climate of South Australia is somewhat similar to that of Mediterranean countries, the Cape region of South Africa, Chile, and California.

Within the agricultural areas of the State, seasonal rains for the most part commence in March-June and conclude in September-December.

The period of effective rainfall from autumn or early winter to spring or early summer

By **H. C. TRUMBLE**

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fluctuates considerably with location and season; the period of drought varies similarly.

The average rainfall for the year has commonly been taken as a main index of the amount of moisture likely to be available at a particular centre; but seasonal incidence, reliability, and the effectiveness of rains as governed by the rate of evaporation, are also important. The amount of run-off, which depends on slope, vegetational cover and general penetrability of the surface soil, together with the capacity of the soil and the subsoil to hold reserves of moisture, need further to be taken into consideration.

South Australian records of rainfall are numerous, reasonably complete and, at some centres, of unusually long duration. This has naturally arisen from the early recognition of the dependence of rural production on available moisture.

RECENT APPROACHES.

The work of Professor J. A. Prescott, and the late Professor James Davidson has opened the way to a better understanding of climatic factors in Australia generally. Wet and dry bulb thermometer readings enable the relative humidity, in addition to the temperature of the atmosphere to be determined; with these values the saturation deficiency of the air can

be read directly from appropriate tables, and the loss of water from an evaporimeter tank estimated with accuracy.

Studies of evaporation from soil indicate that the top four inches tends to lose a fifth to one-half the moisture which evaporates from a water surface as exposed in the standard Australian evaporimeter, over the time between wetting by rain and drying. Undulations and the presence of growing plants or dry surface cover, will naturally modify this relationship.

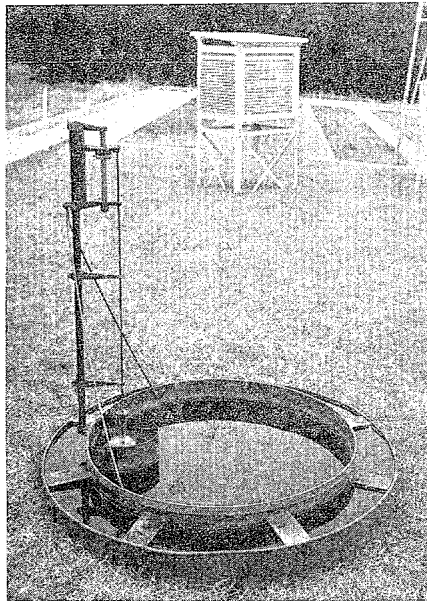
The ratio is highest at a low rate of loss, as in the winter months, and is lowest when the rate of evaporation is high, as in summer. For the critical months at the commencement and termination of the effective rainfall season, the evaporation from an exposed soil surface is about one-third that from the evaporimeter, and this factor has been employed in most South Australian work. The differences in (a) the rate of evaporation per month, and (b) the relationship between evaporation and saturation deficiency for each month, necessitate the treatment of each month as an entity; no general formula has been used for all months of the year.

On the basis of the above, the mean evaporimeter losses and the mean period of effective or influential rainfall were determined in 1936 for 206 South Australian stations.

During the intervening period these values have proved useful in assessing the rainfall characteristics of the State as a whole. The methods have been checked from time to time with the behaviour of pastures and crops, and the probabilities of receiving influential rainfall over different periods of the year have also been determined.

A factor of importance in these studies has been the relatively low variability of the evaporimeter losses for any given month, compared with the rainfall for that month. The Waite Institute

evaporimeter has been employed as a standard reference; other evaporimeters were either unsatisfactorily placed or had been insufficiently long in operation.



Standard Australian evaporimeter in use at the Waite Institute. An inner circular tank 36in. in diameter and 36in. in depth is surrounded by an outer jacket 48in. in diameter and 34in. in depth. The level of water in the inner tank is read by means of a float and vernier gauge.

Daily readings of evaporation have been recorded continuously from the Waite Institute evaporimeter for 23 years. Similar evaporimeters under the supervision of the Waite Institute were established at Pallamana, north

of Murray Bridge, and at Yudnapinna, north west of Port Augusta, in 1937 and 1938 respectively.

RE-EXAMINATION OF INDICES.

Recently, the mean losses by evaporation from the Waite Institute evaporimeter have been re-examined and compared with the means employed in 1936. A slight but constant reduction in the evaporimeter loss for each month has occurred since 1931, and this is thought to be due to the increasing protective influence of more abundant vegetation, including trees and shrubs planted from 1928 onwards that has characterized the Waite Institute during this period.

The following table shows the gradual decline of the evaporimeter loss at the Waite Institute from 1931 onwards. The values for each month show a similar trend.

The use of geographically dispersed values for evaporation depends on the adoption of a standard which enables all values to be compared in a sufficiently accurate relative sense.

It should be recognized that the figures employed in 1936 were based on the average evaporimeter losses at the Waite Institute for the period 1925-35 inclusive and would indicate the losses to be anticipated from a similar evaporimeter under comparable conditions of exposure at other centres. The estimates of evaporation now employed are similarly those to be anticipated from a standard 36in. tank under the conditions of exposure that existed on the average at the Waite Institute over the period 1925-45. Before these values were determined, however, the estimates of 1936 for both Pallamana and Yudnapinna were compared with actual evaporimeter losses recorded at these two centres since standard tanks were established there.

TABLE 1

Mean Annual Evaporation Waite Institute 1925-46; Comparison of Running Means, from 1929 Onwards. (Standard Evaporimeter Loss per Annum, Inches)

1925-29	1925-30	1925-31	1925-32	1925-33	1925-34	1925-35	1925-36	1925-37
60.41	61.60	61.80	61.64	61.21	61.10	60.47	59.83	59.11
1925-38	1925-39	1925-40	1925-41	1925-42	1925-43	1925-44	1925-45	1925-46
58.67	58.40	58.27	57.95	57.74	57.38	57.24	56.95	56.58

COMPARISON OF ESTIMATED WITH ACTUAL EVAPORIMETER LOSSES.

The following tables provides comparisons of values estimated in 1935 with means of evaporimeter losses recorded subsequently.

The differences in the value for any month have been as high as -1.9in. at Yudnapinna and +1.4in. at Pallamana. Apart from these two instances, other differences have not exceeded one inch, and in the majority of cases,

TABLE 2
Evaporation from a Standard 36in. Tank.

(a) Waite Institute—Actual 1925-35, 1925-45 and 1925-47.
(b) Pallamana—Estimated 1935 and Actual 1938-45.
(c) Yudnapinna—Estimated 1936 and Actual 1939-45, 1939-47.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(a) Waite Institute—													
Actual—													
1925-35	9.2	7.4	6.8	4.2	3.0	2.0	1.9	2.5	3.4	4.8	6.7	8.5	60.4
1925-45	8.6	7.1	6.5	4.0	2.8	1.8	1.8	2.3	3.2	4.7	6.3	7.9	57.0
1925-47	8.6	7.0	6.4	4.0	2.8	1.8	1.7	2.3	3.2	4.6	6.2	7.8	56.4
Difference—													
1935-45	-0.6	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	-0.4	-0.6	-3.4
1937-47	-0.6	-0.4	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.5	-0.7	-4.0
(b) Pallamana—													
Estimated—													
1925-35	12.3	8.9	7.1	5.1	2.9	2.0	2.1	3.0	4.6	6.6	8.5	10.9	74.0
Actual—													
1938-45	10.5	8.7	8.1	4.8	2.9	2.0	2.0	2.9	4.4	6.4	8.0	10.3	71.0
1938-47	10.4	8.3	7.7	4.5	2.9	2.0	2.0	2.9	4.2	6.1	7.7	10.0	68.7
Difference—Actual—													
Estimated—													
1945	-1.8	-0.2	+1.0	-0.3	—	—	-0.1	-0.1	-0.2	-0.2	-0.5	-0.6	-3.0
1947	-1.9	-0.6	+0.6	-0.6	—	—	-0.1	-0.1	-0.4	-0.5	-0.8	-0.9	-5.3
(c) Yudnapinna—													
Estimated—													
1935	14.1	12.2	9.4	6.5	3.5	2.4	2.5	3.8	5.8	8.7	12.1	13.7	94.7
Actual—													
1939-45	14.9	12.4	10.8	7.0	4.4	2.8	3.0	4.1	6.7	9.3	11.6	13.4	100.4
1939-47	14.3	11.6	10.3	6.6	4.3	2.8	3.0	4.1	6.4	9.2	11.1	12.9	96.6
Difference—Actual—													
Estimated—													
1945	+0.8	+0.2	+1.4	+0.5	+0.9	+0.4	+0.5	+0.3	+0.9	+0.6	-0.5	-0.3	+5.7
1947	+0.2	+0.6	+0.9	+0.1	+0.8	+0.4	+0.5	+0.3	+0.6	+0.5	-1.0	-0.8	+1.9

The figures indicate sufficient agreement between estimated and actual evaporimeter losses to substantiate the validity of the methods of estimation employed.

On the yearly basis, the estimates for Pallamana and Yudnapinna made in 1935 differ from the means of actual losses to 1945 and 1947 by only 4.2 per cent and 7.7 per cent respectively at Pallamana and 5.5 per cent and 2.0 per cent respectively at Yudnapinna. These are close indeed when compared with the differences between the means for the Waite Institute evaporimeter to 1945 and 1947 and the means of the readings up to 1935. The differences here are 6.9 per cent and 7.1 per cent; that is to say, differences between estimates of evaporation and the averages of actual records examined 10 and 12 years later are no greater than the differences between actual records from the standard centre taken similarly.

are less than 0.7in., which is the greatest difference between the means of readings at the Waite Institute taken in 1935, 1945, and 1947. Most differences are of the order of 5 per cent, and as a factor of one-third or one-quarter of the evaporation loss has been compared, in the most recent work, with the rainfall for any month, the final errors of estimation are small enough to be insignificant.

EXPECTANCIES OF WET PERIODS.

The early work was based on means, but since 1939 attention has been paid to the probabilities with which effective rainfall is likely to occur over any month or a period covered by a varying number of consecutive months. The methods employed in these studies have been previously described and the accompanying tables make available, generally, the practical outcome of this work.

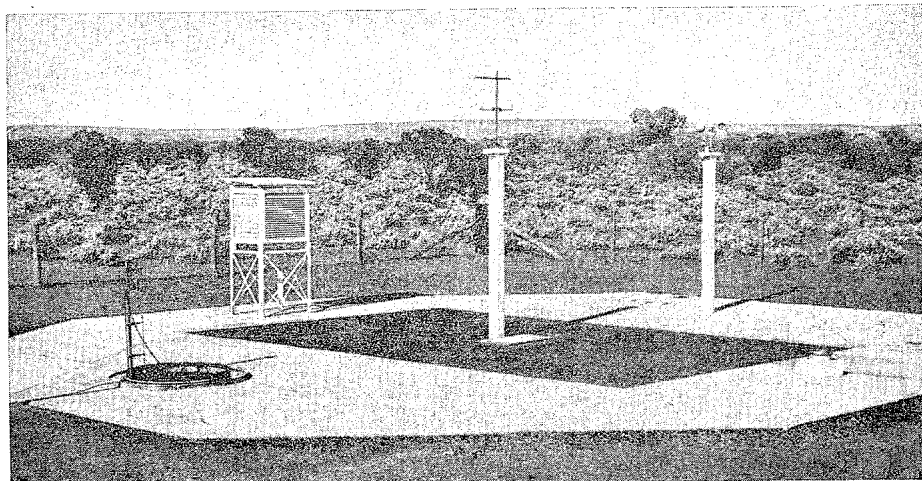
The tables provide means of the monthly rainfall for each centre listed to the end of 1943, and the mean estimated monthly evaporation to 1945, together with the mean annual rainfall, the mean rainfall season in months and the percentage of seasons in which rainfall is considered to be effective for each month of the year, based on the data available to the end of 1945. Two further values are the percentage drought-frequency—the number of years in a hundred in which the season of continuously effective rainfall is less than five months—and the mean air temperature for July, the coldest month of the year. A drought year is one in

CHARACTERISTICS OF DIFFERENT REGIONS.

In the appended tables the percentage drought-frequency varies from nil at Mount Gambier and Kalangadoo to 93 per cent at Port Augusta and 95 per cent at Morgan.

The centres of highest rainfall, in the lower South-East and the Mount Lofty ranges respectively, are, for the most part characterized by a drought-frequency of below 10 per cent, many of these centres having a drought-frequency of 5 per cent or less.

The wheatgrowing areas of most assured rainfall, which include Saddleworth, Spalding



General view of meteorological station maintained by the Waite Institute at Yudnapinna. Note evaporimeter cabinet containing maximum, minimum, wet and dry bulb thermometers, wind direction indicator, and anemometer, standard rain gauge.

which May, June, July and August might be characterized by continuously effective rainfall, but September happens to be too dry to maintain the surface soil in a moist condition. Alternatively, June, July, August and September may be sufficiently moist but both May and October are dry. Similarly, a period of one, two, or three wet months may be followed by one or more dry months prior to additional effective rainfall. In all three cases, the year is classed as a drought year. The critical limits of effective rainfall for any month have been taken as a third of the standard evaporation for the month up to an amount of 6in. evaporation for the month and quarter of the standard evaporation where the value is above 6in. for the month.

and Maitland, have a percentage drought-frequency of 20 to 30 per cent. The value for the Waite Institute is 14 per cent and that for Roseworthy College, 25 per cent. The marginal wheat-growing areas, including such centres as Alawoona, Cowell, Ceduna, Eurelia, Hawker, Kimba and Loxton, show values of 60 to 70 per cent; that is to say, there are, on the general average, in these areas, about two drought years in three.

Concerning July temperatures, a value below 50°F. indicates a substantial check to growth in mid-winter; where the value is above 50°F. the coldest period is still comparatively warm, and active growth may be made in June, July, and August.

The range of variation in the mean air temperature for July is from 45°F. (Yongala) to 54°F. (Whyalla); these two centres characterize the coldest and warmest parts of South Australia in mid-winter, and are less than seventy miles apart. Maps showing the mean annual rainfall, percentage drought-frequency, the percentage of seasons with effective rainfall in critical months of the year, such as April and October, and the mean air temperatures for July, are included.

Figure 3 shows an excavated root system of lucerne, 18 months after seeding under natural conditions at the Waite Institute, and this indicates the degree to which subsoil moisture accruing from early rains may be advantageous to deep rooted plants.

The surface soil may dry completely yet there can still be several inches of available water held below the top layer. This is the case under fallow, sand-drift, and land unproductive



Excavated root system of lucerne, 18 months from seeding, grown under field conditions on natural rainfall at the Waite Institute, showing distribution and penetration of main roots, painted white, to a depth of 42in.

ROOT PENETRATION AND PLANT PRODUCTION.

The season commences with a substantial rain or a continuity of rains, accompanied and followed by a rate of evaporation low enough to maintain, for some weeks at least, a moist condition of the surface soil. A drought of sufficient severity to kill seedlings that have germinated during and after these rains may subsequently ensue.

Deep-rooted perennials such as lucerne and phalaris are frequently able to survive dry periods and to make growth on the moisture held as a reserve in the lower depths of soil and subsoil.

through low fertility or denuded by severe over-grazing.

When growth of a pasture or field crop has commenced, each inch of rainfall available to the plant within the range of its root system is sufficient for the production of two to five cwt. dried forage. A ton of dry grass, clover, lucerne or cereal hay will require five to ten acre-inches of water, according to the evaporation rate, the level of soil fertility, the kind of pasture or crop and its management. For any given crop or pasture the production per acre-inch of available water is highest where the evaporation rate is lowest and soil fertility and management most favourable.

RESERVES OF SOIL MOISTURE.

Effective rains enable the surface four inches or so of soil to be maintained in a moist condition for periods which lengthen as the evaporation rate decreases. When the top soil dries, growth can only continue if the root system is capable of exploiting subsoil moisture; the quantity available depends on the rain that has fallen and the capacity of the subsoil to hold such reserves.

Deep sands retain less moisture than loams with clay subsoils; on the other hand, sands give up more to the plant as a drought condition is approached.

Subsoil moisture to the extent of ten inches or more can be drawn on by deep-rooted plants, such as lucerne, phalaris, evening primrose or wheat to produce a ton or more of additional dry forage after effective rains have ceased.

Most annual herbage plants are unable to exploit more than the top foot of soil; the amount of growth that can be made by subterranean clover and the medics, after the termination of effective rains, is therefore limited, while production rarely occurs from these plants, out-of-season. Lucerne, strawberry clover and kikuyu grass, on the other hand, can make substantial growth after the rainfall season has ceased and frequently respond actively to rains in summer or early autumn following a period of dryness extending over several months. The amount of out-of-season growth is again from two to five cwt. of dry material per acre-inch of rain received.

USE OF THE TABLES.

The accompanying tables list 204 South Australian stations. For convenience these are referred to in terms of the following main regions of the State:—

- S.E.—South-East.
- M.M.—Murray Mallee.
- C.—Central.
- L.N.—Lower North (including County Eyre).
- U.N.—Upper North.
- Y.P.—Yorke Peninsula.
- K.I.—Kangaroo Island.

E.P.—Eyre Peninsula.

W.—West Coast and Upper Eyre Peninsula.

The means of monthly and annual rainfall are indicated by the letter *R*; this has been employed in place of the conventional term *P* for precipitation, which includes snow in colder regions. Estimated mean monthly evaporation is denoted by the letter *E*.

The mean rainfall season in months is an especially useful index, providing a measure of the average length of the growing season for surface-rooted annual plants.

The tables also indicate the probability of receiving (*a*) effective rainfall for each month, and (*b*) a season characterized by drought. Finally, the average air temperatures for the coldest month, July, are listed.

It is possible, from the tables, to determine the most favourable month for seeding winter-grown and summer-grown pastures and crops. At some centres it is advantageous to sow permanent pastures in spring rather than autumn. The tables indicate the drought risks involved, according to the time of the year.

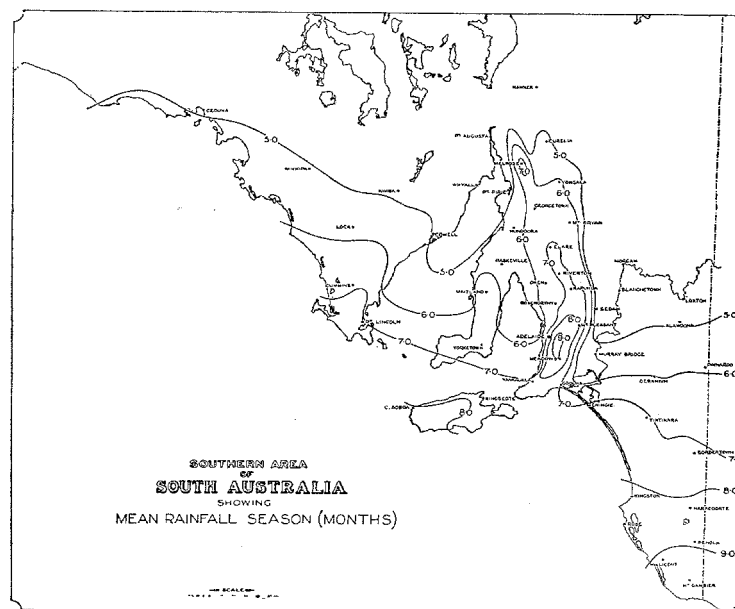
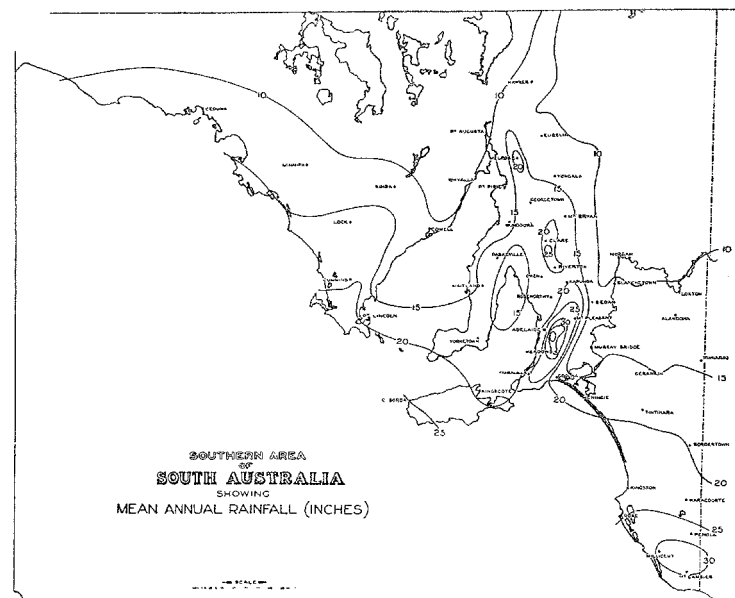
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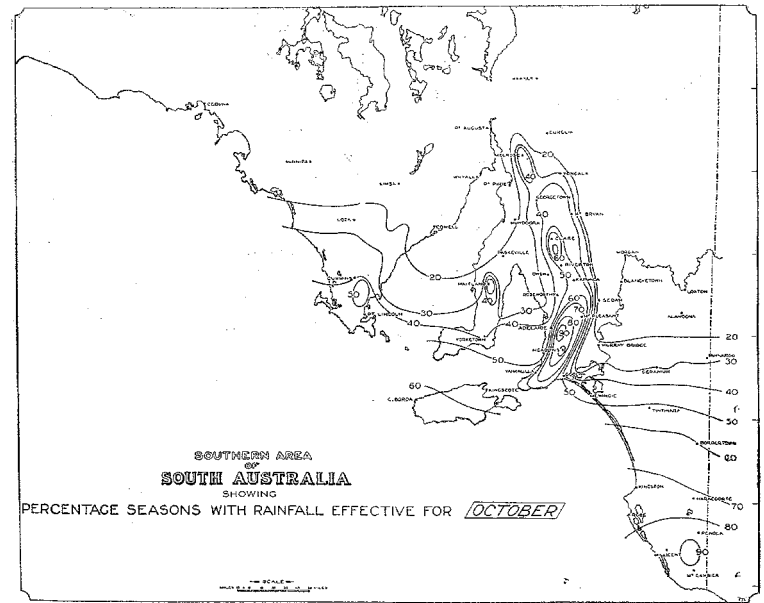
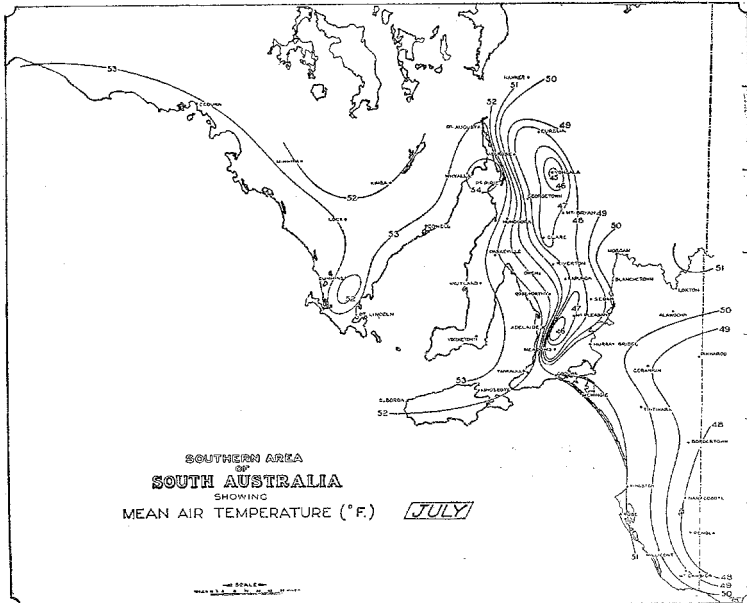
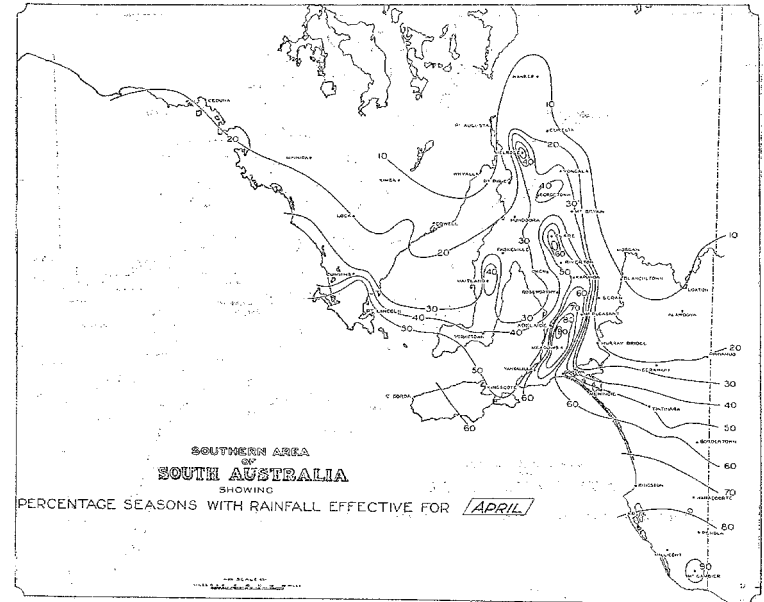
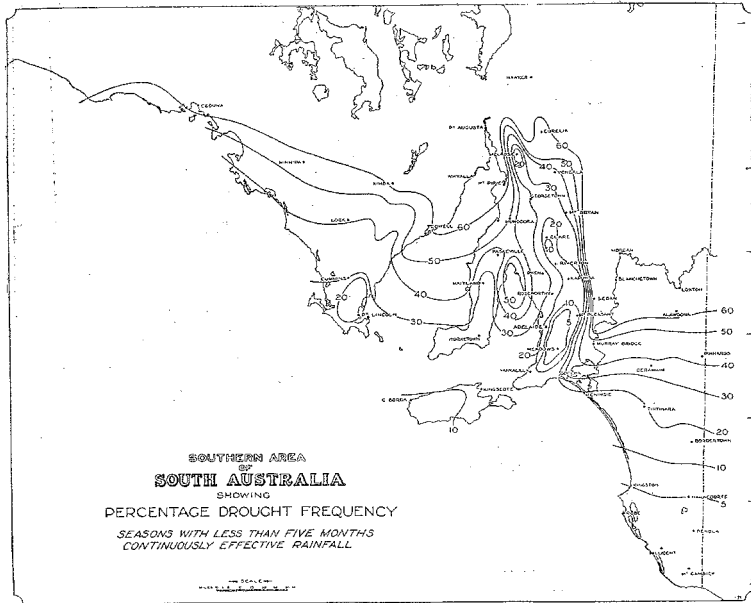
Acknowledgement is made to Mr. E. J. Leaney, who was responsible for the final preparation of the maps, to Miss Geraldine Brookes, for assistance with the tables and maps and to Mr. K. P. Phillips, for the photography involved.

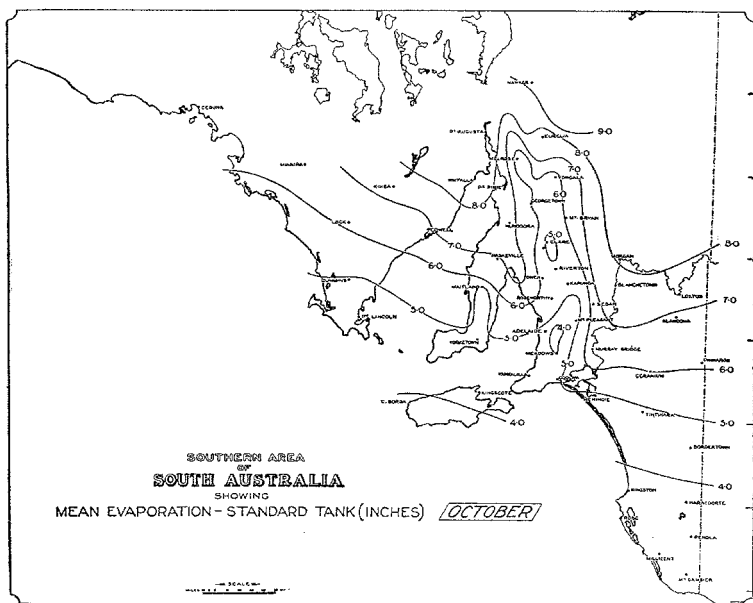
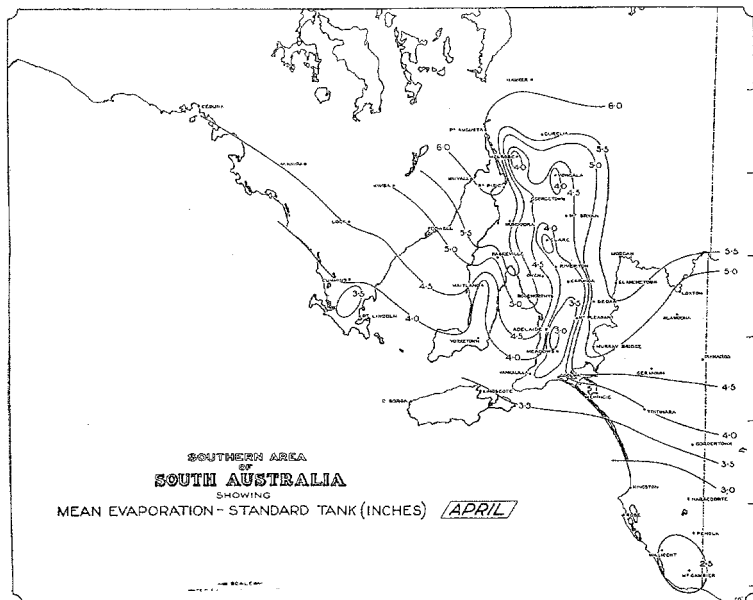
Mean rainfall data to 1943, together with the means for temperature, relative humidity and saturation deficiency at selected stations, was kindly supplied by the Commonwealth Meteorological Bureau.

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INDICES

INDICES OF RAINFALL, EVAPORATION, AND

DROUGHT—FREQUENCY IN SOUTH AUSTRALIA

Centre	Years Rain-fall Records	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall (inches)
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Adelaide	106	R. 0.78	0.76	1.00	1.77	2.69	3.01	2.62	2.52	2.08	1.69	1.16	1.03	21.11
		E. 8.9	7.3	6.7	4.2	2.9	1.9	1.9	2.5	3.4	4.8	6.5	8.2	
Alawoona	22	R. 0.97	0.58	0.35	0.78	1.09	1.11	1.13	1.15	1.03	0.98	0.55	0.67	10.39
		E. 11.5	9.1	7.2	4.9	2.8	2.0	1.9	2.8	4.7	6.9	8.6	11.2	
Aldinga	50	R. 0.65	0.68	0.97	1.52	2.36	3.12	2.69	2.48	2.26	1.56	1.01	0.78	20.08
		E. 8.6	7.1	5.8	3.9	2.5	1.8	1.9	2.4	3.2	4.6	6.2	7.8	
Angaston	62	R. 0.90	0.77	0.94	1.73	2.39	3.03	2.68	2.99	2.57	1.89	1.30	1.08	22.27
		E. 8.7	7.1	6.0	3.7	2.0	1.5	1.4	2.0	3.0	4.8	6.8	8.3	
Appila	70	R. 0.74	0.73	0.81	1.15	1.39	1.74	1.52	1.74	1.60	1.30	0.96	0.94	14.62
		E. 11.1	8.9	6.6	4.8	2.7	1.8	1.8	2.3	3.6	6.0	8.6	10.7	
Ardrossan	64	R. 0.57	0.51	0.69	1.18	1.62	1.93	1.53	1.79	1.49	1.22	0.82	0.57	13.92
		E. 10.3	8.2	6.5	4.5	3.0	2.2	2.2	2.8	3.8	6.2	8.6	9.8	
Arno Bay	36	R. 0.49	0.70	0.67	0.92	1.23	1.61	1.48	1.53	1.38	1.20	0.80	0.63	12.64
		E. 10.6	8.3	6.3	4.6	2.9	2.1	2.2	2.7	3.8	6.1	8.2	10.3	
Ashbourne	56	R. 1.00	0.76	1.14	2.07	2.92	4.21	3.77	3.44	3.33	2.22	1.42	0.94	27.22
		E. 8.4	6.9	5.2	3.4	2.0	1.4	1.4	1.9	2.8	4.3	6.3	8.1	
Auburn	79	R. 1.08	0.87	1.07	1.82	2.66	3.07	2.94	3.07	2.76	2.09	1.34	1.06	23.83
		E. 10.6	8.3	6.0	3.6	1.7	1.0	1.1	1.7	2.8	4.9	7.8	9.9	
Balaklava	65	R. 0.79	0.64	0.70	1.37	1.74	1.91	1.68	1.83	1.66	1.39	0.96	0.79	15.44
		E. 11.0	8.6	6.9	4.6	3.0	1.9	1.9	2.4	3.6	6.0	8.4	10.6	
Beachport	63	R. 0.93	0.86	1.14	1.99	3.16	4.56	4.45	3.61	2.49	1.75	1.17	1.17	27.28
		E. 5.5	4.2	3.4	2.6	1.6	1.4	1.4	1.7	2.4	3.4	4.3	5.0	
Belair	63	R. 1.07	0.80	1.25	2.36	3.59	4.60	3.68	3.63	3.01	2.19	1.43	1.21	28.82
		E. 8.5	6.7	5.3	3.4	2.2	1.5	1.5	2.1	3.1	4.5	6.2	7.9	
Berri	29	R. 0.73	0.82	0.86	0.60	1.00	1.02	0.94	1.17	1.06	0.90	0.59	0.79	9.98
		E. 11.9	9.6	7.3	5.0	2.9	1.8	1.9	2.9	4.8	7.6	9.5	11.6	
Birdwood	56	R. 1.09	0.79	1.03	2.20	3.05	4.39	3.86	4.05	3.38	2.32	1.44	1.15	23.75
		E. 8.7	6.6	5.1	3.3	1.9	1.3	1.3	1.9	3.0	4.4	6.2	8.0	
Blanchetown	50	R. 0.74	0.58	0.71	0.98	1.14	1.13	0.90	1.11	0.95	1.03	0.73	0.75	10.75
		E. 12.0	9.9	7.6	5.7	3.0	2.0	2.1	3.0	4.8	7.7	9.9	11.9	
Blyth	63	R. 0.80	0.68	0.72	1.35	1.96	2.17	1.82	2.07	1.89	1.43	0.94	0.88	16.71
		E. 10.9	8.5	6.4	3.8	2.4	1.4	1.6	2.2	3.4	5.8	8.4	10.3	
Boomer Centre	61	R. 0.84	0.73	0.65	1.11	1.47	2.07	1.62	1.86	1.59	1.31	0.91	0.90	15.06
		E. 11.1	8.8	6.5	4.3	2.3	1.8	1.9	2.3	3.4	5.9	8.7	11.0	
Bordertown	63	R. 0.83	0.82	0.83	1.57	1.99	2.46	2.28	2.25	2.19	1.70	1.24	1.08	19.24
		E. 7.9	6.5	4.7	3.6	2.1	1.7	1.7	2.0	2.7	4.5	5.9	7.6	
Brentwood	43	R. 0.51	0.65	0.67	1.14	1.80	2.30	2.10	2.11	1.73	1.33	0.91	0.61	15.86
		E. 9.0	6.8	5.4	4.0	2.9	2.2	2.2	2.6	3.7	5.0	7.0	8.1	
Brinkworth	46	R. 0.68	0.76	0.72	0.96	1.72	2.17	1.71	2.12	1.78	1.31	0.87	0.85	15.65
		E. 11.3	9.0	6.9	4.6	2.7	1.7	1.8	2.5	3.8	6.2	8.8	10.7	
Burra	85	R. 0.79	0.73	0.82	1.22	1.90	2.31	2.13	2.26	2.05	1.66	0.98	0.94	17.74
		E. 11.1	9.0	6.4	4.3	2.2	1.7	1.7	2.3	3.2	6.0	8.5	10.7	
Bute	59	R. 0.69	0.59	0.66	1.25	1.75	2.19	1.90	2.02	1.62	1.33	0.83	0.69	15.52
		E. 12.0	9.5	7.6	5.6	3.1	2.1	2.2	3.0	4.3	7.2	10.3	11.8	
Callington	60	R. 0.83	0.59	0.75	1.14	1.53	1.86	1.69	1.80	1.75	1.29	0.92	0.81	14.96
		E. 10.8	8.1	6.5	4.7	2.8	1.9	1.9	2.9	4.2	5.7	8.0	10.2	
Caltowie	67	R. 0.80	0.77	0.78	1.24	1.69	2.00	1.78	2.12	1.93	1.49	1.11	0.95	16.66
		E. 11.1	8.9	6.7	4.3	2.4	1.7	1.7	2.3	3.6	6.0	8.8	10.9	
Cape Borda	74	R. 0.62	0.69	0.88	1.86	3.16	4.60	4.20	3.49	2.16	1.54	0.98	0.79	24.97
		E. 6.2	5.7	3.9	3.1	2.2	2.0	1.9	2.1	2.5	3.6	4.7	5.5	
Cape Northumberland	77	R. 0.96	0.96	1.16	2.16	3.17	3.88	3.94	3.61	2.61	1.94	1.41	1.31	27.11
		E. 5.8	4.6	3.7	2.5	1.6	1.4	1.5	1.9	2.4	3.5	4.1	5.1	
Carrieton	61	R. 0.85	0.64	0.54	0.75	1.14	1.56	1.25	1.45	1.09	0.96	0.82	0.89	11.94
		E. 13.0	10.2	7.9	5.9	3.1	2.1	2.2	3.2	4.9	8.0	10.3	12.2	
Ceduna	37	R. 0.28	0.67	0.57	0.65	1.29	1.59	1.44	1.46	0.83	0.83	0.75	0.43	10.84
		E. 10.3	8.2	6.3	4.6	3.1	2.1	2.1	2.6	3.9	6.4	8.5	10.4	
Clare	82	R. 0.99	0.89	1.00	1.93	2.79	3.29	3.04	3.11	2.79	2.08	1.30	1.12	24.83
		E. 10.6	8.1	5.8	3.4	1.7	1.0	1.1	1.6	2.8	5.0	7.7	9.8	
Clarendon	73	R. 1.14	0.91	1.46	2.84	3.80	5.04	4.26	4.28	3.49	2.50	1.58	1.37	32.67
		E. 8.3	6.3	4.7	3.2	1.8	1.0	1.1	1.8	2.7	4.2	6.0	7.7	
Cleve	65	R. 0.59	0.70	0.76	1.14	1.65	1.88	1.70	1.84	1.62	1.34	0.95	0.68	14.85
		E. 10.7	8.6	6.5	4.7	3.0	2.2	2.2	2.7	3.9	6.5	8.4	10.5	

Mean Rainfall Season	Percentage Seasons with Rainfall Effective for												Percentage Drought Year Frequency (%)	Mean Air Temp. (°F.) July	Region	Centre
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.				
7.3	7	14	17	51	92	98	98	96	85	52	22	11	17	52	C.	Adelaide
4.6	4	4	1	14	52	71	77	71	29	15	3	2	70	50	M.M.	Alawoona
7.2	2	12	26	58	89	97	98	96	85	51	22	6	18	52	C.	Aldinga
7.6	4	14	19	64	92	98	100	97	91	60	21	12	13	47	L.N.	Angaston
5.9	3	8	8	26	73	92	93	92	69	26	12	3	39	48	U.N.	Appila
5.6	2	2	10	20	70	87	91	87	57	17	6	1	45	53	Y.P.	Ardrossan
5.3	—	5	8	20	68	87	87	87	64	15	3	—	52	53	E.P.	Arno Bay
8.1	6	15	30	71	95	99	100	97	95	73	37	12	8	48	C.	Ashbourne
7.6	3	11	21	64	92	99	99	96	92	65	21	14	13	48	L.N.	Auburn
6.3	1	6	6	37	83	92	95	93	76	32	9	5	32	50	L.N.	Balaklava
8.7	15	21	38	82	98	100	100	99	98	82	38	29	2	51	S.E.	Beachport
8.2	8	20	36	79	96	99	100	98	97	73	32	21	7	49	C.	Belair
4.5	4	13	1	10	48	72	69	57	25	9	2	3	73	51	M.M.	Berri
8.2	13	15	29	70	96	99	100	97	95	75	38	20	7	46	C.	Birdwood
4.3	3	2	7	13	53	75	74	53	16	8	2	2	78	50	M.M.	Blanchetown
6.7	3	8	12	51	85	97	96	95	82	45	12	5	25	48	L.N.	Blyth
6.1	5	6	9	32	76	93	94	91	72	29	11	5	36	48	U.N.	Boomer Centre
7.5	5	15	19	55	92	93	99	95	94	61	23	11	14	49	S.E.	Bordertown
6.4	2	9	14	36	79	95	97	92	72	34	11	3	30	53	Y.P.	Brentwood
6.0	2	5	9	31	83	95	95	93	75	32	7	6	32	49	L.N.	Brinkworth
6.6	5	3	12	35	85	94	96	94	80	43	12	7	27	48	U.N.	Burra
5.7	2	1	3	24	74	90	94									

INDICES OF RAINFALL, EVAPORATION, AND DROUGHT--

FREQUENCY IN SOUTH AUSTRALIA--continued.

Centre	Years Rainfall Records	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall (inches)	Mean Rainfall Season (mmths.)	Percentage Seasons with Rainfall Effective for--												Percentage Drought Year Frequency (%)	Mean Air Temp. (°F.)	Region	Centre	
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.					
Cooke's Plains	53	R. 0.69	0.65	0.87	1.20	1.54	1.93	1.68	1.83	1.77	1.36	0.92	0.87	15.31	6.0	5	8	17	30	77	90	94	93	65	29	11	7	37	50	M.M.	Cooke's Plains	
		E. 10.3	7.9	6.4	4.7	2.7	2.0	1.9	2.8	4.2	5.9	7.8	10.0																			
Coomandook	40	R. 0.69	0.67	0.86	1.14	1.96	2.12	1.99	2.08	1.92	1.52	1.08	0.83	16.86	6.4	7	8	14	34	82	93	95	93	76	35	15	7	30	50	M.M.	Coomandook	
		E. 9.7	7.5	6.1	4.5	2.6	1.9	1.8	2.7	4.0	5.7	7.3	9.3																			
Coonalpyn	57	R. 0.85	0.65	0.84	1.43	1.82	2.24	2.10	2.16	2.03	1.58	1.07	0.94	17.71	7.0	4	12	18	43	86	95	97	94	81	43	17	8	20	50	M.M.	Coonalpyn	
		E. 8.6	6.7	5.3	4.1	2.4	1.8	1.8	2.5	3.7	5.1	6.5	8.4																			
Copeville	32	R. 0.70	0.75	0.62	0.67	1.15	1.37	1.04	1.32	1.37	1.05	0.73	0.90	11.67	4.9	4	4	9	13	57	80	85	82	33	14	4	4	62	50	M.M.	Copeville	
		E. 11.6	9.2	7.2	5.1	3.1	2.0	2.0	2.9	4.6	7.1	9.0	11.3																			
Cowell	30	R. 0.35	0.73	0.60	0.67	1.33	1.99	1.88	1.79	1.22	0.98	0.67	0.47	12.68	5.0	1	4	13	19	41	76	75	58	33	11	3	—	59	53	E.P.	Cowell	
		E. 11.1	9.2	7.0	4.9	3.3	2.3	2.3	2.8	4.2	6.9	9.1	10.8																			
Cradock	55	R. 0.72	0.67	0.55	0.70	1.02	1.46	0.94	1.11	0.92	0.87	0.75	0.80	10.51	3.9	5	6	4	12	38	68	65	53	14	5	2	6	87	50	U.N.	Cradock	
		E. 13.8	11.7	8.6	6.0	3.2	2.1	2.3	3.4	5.5	9.0	11.2	13.4																			
Crystal Brook	63	R. 0.81	0.72	0.69	1.20	1.67	2.07	1.67	1.96	1.69	1.47	0.92	0.86	15.73	5.8	2	4	8	26	77	92	92	90	63	27	11	2	41	51	U.N.	Crystal Brook	
		E. 11.4	9.2	7.2	5.5	2.9	1.9	2.0	2.8	4.1	6.8	9.4	11.2																			
Cummins	29	R. 0.46	0.75	0.50	0.91	1.92	2.91	2.88	2.76	1.92	1.26	0.77	0.59	17.63	6.4	1	13	10	31	85	93	98	93	74	34	15	5	30	52	E.P.	Cummins	
		E. 7.9	6.1	5.0	4.2	2.7	2.1	2.1	2.4	3.2	4.9	6.3	7.4																			
Curramulka	57	R. 0.65	0.53	0.81	1.26	1.96	2.61	2.31	2.33	1.90	1.59	0.88	0.70	17.53	6.9	3	8	18	33	82	95	96	96	75	37	11	3	22	53	Y.P.	Curramulka	
		E. 8.9	6.8	5.3	4.0	2.9	2.2	2.2	2.6	3.6	4.8	6.6	8.3																			
Darke Peak	29	R. 0.67	0.85	0.55	0.82	1.46	2.08	1.85	2.23	1.75	1.25	0.86	0.72	15.09	5.7	3	13	10	18	70	89	92	88	61	21	4	2	43	52	E.P.	Darke Peak	
		E. 10.5	8.4	6.5	4.6	3.0	2.2	2.2	2.7	3.8	6.3	8.4	10.4																			
Echunga	64	R. 1.21	0.97	1.38	2.67	3.90	5.02	4.24	4.33	3.88	2.71	1.65	1.28	33.24	8.7	11	24	41	87	98	100	100	98	98	85	41	27	3	47	C.	Echunga	
		E. 8.4	6.3	4.8	3.2	1.7	1.0	1.1	1.8	2.8	4.2	5.8	7.8																			
Edithburgh	69	R. 0.58	0.59	0.76	1.33	1.93	2.34	2.13	2.08	1.77	1.27	0.89	0.61	16.28	6.8	1	12	17	43	86	95	97	91	79	47	12	4	23	53	Y.P.	Edithburgh	
		E. 8.4	6.1	5.0	3.8	2.7	2.1	2.1	2.4	3.4	4.5	6.2	7.8																			
Eudunda	63	R. 0.81	0.74	0.77	1.32	1.74	2.18	1.85	2.21	1.87	1.49	1.06	0.96	17.00	6.3	3	8	11	34	72	92	95	93	69	36	13	6	32	48	L.N.	Eudunda	
		E. 11.5	8.4	6.7	4.6	2.7	1.9	1.9	2.8	4.3	5.8	8.6	11.0																			
Eurelia	62	R. 0.83	0.71	0.56	0.80	1.19	1.58	1.26	1.57	1.25	1.03	0.96	0.81	12.55	5.1	8	11	6	15	60	85	84	84	39	12	4	4	57	48	U.N.	Eurelia	
		E. 12.8	9.9	7.8	5.8	3.0	2.0	2.1	3.1	4.8	7.9	10.2	12.1																			
Farrell Flat	65	R. 0.87	0.69	0.74	1.38	2.00	2.46	2.16	2.59	2.12	1.63	0.96	0.94	18.54	6.8	6	8	9	44	88	96	98	96	83	46	16	10	23	48	L.N.	Farrell Flat	
		E. 11.0	8.8	6.4	4.0	2.2	1.5	1.5	2.1	3.2	5.7	8.3	10.5																			
Fowler's Bay	66	R. 0.39	0.46	0.57	0.84	1.66	2.15	1.74	1.48	0.86	0.82	0.62	0.33	11.92	5.1	4	10	11	18	67	87	88	78	25	6	5	—	57	53	W.	Fowler's Bay	
		E. 10.1	7.9	6.0	4.5	2.8	2.2	2.2	2.6	3.6	6.3	8.4	10.0																			
Frances	54	R. 0.78	0.80	0.90	1.50	2.08	2.47	2.44	2.53	2.30	1.88	1.25	1.22	20.15	8.0	5	17	29	64	90	95	100	96	94	66	32	19	8	48	S.E.	Frances	
		E. 7.5	6.1	4.4	3.0	2.0	1.6	1.6	1.9	2.6	4.0	5.2	7.0																			
Freeling	60	R. 0.84	0.65	0.82	1.45	1.82	2.30	1.95	2.27	1.97	1.61	1.06	0.92	17.66	6.9	2	4	13	45	86	96	97	96	86	47	14	3	22	50	L.N.	Freeling	
		E. 11.0	8.6	6.3	4.0	2.3	1.4	1.5	2.0	3.2	5.6	8.1	10.6																			
Gawler	83	R. 0.81	0.71	0.87	1.59	2.21	2.52	2.18	2.30	2.03	1.68	1.07	0.89	18.86	7.1	1	5	14	50	90	98	99	96	87	51	16	6	19	51	L.N.	Gawler	
		E. 11.0	8.8	6.7	4.3	2.3	1.6	1.6	2.2	3.3	5.1	8.0	10.2																			
Georgetown	70	R. 0.79	0.78	0.78	1.46	1.99	2.35	2.03	2.26	2.07	1.60	1.02	0.94	18.07	6.6	5	7	8	40	86	97	97	95	76	40	14	6	27	48	U.N.	Georgetown	
		E. 11.1	8.9	6.6	4.6	2.5	1.7	1.7	2.5	3.6	6.0	8.8	10.9																			
Geranium	35	R. 0.68	0.77	0.78	1.10	1.79	1.80	1.72	2.09	1.90	1.37	0.97	0.98	15.95	6.1	4	10	10	25	80	89	95	94	76	32	11	8	36	49	M.M.	Geranium	
		E. 10.0	7.7	6.3	4.6	2.6	2.1	1.9	2.5	4.1	6.0	7.6	9.6																			
Gladstone	66	R. 0.78	0.68	0.70	1.30	1.63	1.99	1.78	2.04	1.87	1.52	1.05	0.88	16.22	6.2	3	8	10	35	82	97	97	94	79	37	15	3	34	49	U.N.	Gladstone	
		E. 11.2	9.0	6.9	4.8	2.7	1.8	1.8	2.6	3.9	6.4	9.0	11.0																			
Goolwa	80	R. 0.78	0.71	0.91	1.42	2.14	2.43	2.34	2.08	1.94	1.46	1.00	0.80	18.10	7.0	5	10	19	57	88	97	98	96	86	52	23	6	20	51	C.	Goolwa	
		E. 8.5	6.6	5.3	3.9	2.6	1.9	1.9	2.5	3.5	4.8	6.2	8.2																			
Greenock	62	R. 0.89	0.76	0.91	1.69	2.27	2.74	2.46	2.86	2.																						

INDICES OF RAINFALL, EVAPORATION, AND BROUGHT—

FREQUENCY IN SOUTH AUSTRALIA—continued.

Centre	Years Rain-fall Re-cords	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall	Mean Rainfall Season	Percentage Seasons with Rainfall Effective for—												Percentage Drought Year Frequency (%)	Mean Air Temp. (°F.)	Region	Centre
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			(inches)	(mnths.)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.				
Hoyleton	R.	0.88	0.58	0.78	1.46	1.93	2.23	1.97	2.23	1.93	1.53	1.04	0.86	17.47	6.7	3	6	11	41	87	97	96	96	82	47	15	6	25	49	L.N.	Hoyleton
	E.	10.8	8.5	6.7	4.2	2.7	1.7	1.7	2.3	3.5	5.9	8.4	10.5																		
Jamestown	R.	0.80	0.73	0.80	1.25	1.71	2.22	2.05	2.31	2.05	1.57	1.14	1.07	17.70	6.5	2	8	12	43	85	96	97	96	84	48	16	6	28	47	U.N.	Jamestown
	E.	11.0	8.9	6.6	4.4	2.4	1.6	1.6	2.3	3.5	6.0	8.8	10.9																		
Johnburg	R.	0.68	0.60	0.52	0.61	1.01	1.23	0.93	1.20	0.98	0.87	0.82	0.84	10.29	4.2	4	6	4	9	45	72	69	63	24	12	5	6	81	49	U.N.	Johnburg
	E.	13.5	11.5	8.3	5.9	3.1	2.1	2.1	3.2	5.4	9.0	11.2	13.3																		
Kadina	R.	0.63	0.57	0.84	1.40	1.92	2.19	1.92	1.91	1.52	1.27	0.80	0.65	15.62	5.8	1	4	4	27	73	91	93	88	57	16	5	—	41	53	Y.P.	Kadina
	E.	11.2	9.1	7.6	5.4	3.1	2.4	2.4	2.9	4.1	7.0	10.1	11.1																		
Kalangadoo	R.	1.32	1.29	1.18	2.44	3.39	3.90	4.44	4.18	3.50	2.54	1.95	1.51	31.64	9.5	29	33	41	87	100	100	100	100	100	92	64	37	—	48	S.E.	Kalangadoo
	E.	6.4	5.2	4.0	2.5	1.4	1.1	1.1	1.4	2.3	3.6	4.4	5.7																		
Kanmantoo	R.	0.85	0.73	0.95	1.48	1.97	2.32	2.21	2.31	2.27	1.61	1.01	0.90	18.61	6.9	3	7	12	42	84	95	98	96	78	47	35	6	22	49	C.	Kanmantoo
	E.	10.1	7.5	5.8	4.4	2.7	1.7	1.8	2.6	3.8	5.3	7.2	9.2																		
Kapunda	R.	0.92	0.73	0.96	1.53	2.15	2.40	2.31	2.43	2.19	1.80	1.15	1.02	19.69	7.2	5	6	13	51	90	98	98	98	86	54	17	6	18	49	L.N.	Kapunda
	E.	10.9	8.4	6.2	3.7	2.1	1.3	1.4	1.8	3.1	5.4	7.8	9.7																		
Karoonda	R.	0.76	0.78	0.57	0.90	1.58	1.56	1.38	1.76	1.59	1.26	0.80	1.00	13.94	5.6	7	6	4	13	79	83	92	92	53	21	8	9	46	50	M.M.	Karoonda
	E.	11.1	8.7	7.1	4.9	2.9	2.0	2.0	2.7	4.5	6.6	8.6	11.0																		
Keith	R.	0.69	0.85	0.72	1.29	2.09	2.13	2.09	2.20	2.17	1.43	1.18	0.98	17.87	6.9	5	12	18	47	87	92	99	94	85	53	23	8	22	50	S.E.	Keith
	E.	8.2	6.6	4.9	3.8	2.2	1.7	1.7	2.2	3.0	4.7	6.1	7.9																		
Keyneton	R.	0.84	0.87	0.76	1.21	2.53	2.88	2.92	3.33	2.83	1.80	1.02	0.98	21.97	7.0	3	13	16	48	89	97	99	96	84	54	17	11	20	47	L.N.	Keyneton
	E.	10.2	7.4	6.0	3.9	2.0	1.4	1.5	2.1	3.2	5.4	7.9	10.1																		
Kilkerran	R.	0.61	0.57	0.70	1.25	1.75	2.12	1.84	1.84	1.49	1.24	0.76	0.64	14.81	6.1	2	4	5	25	64	89	93	87	51	14	7	1	36	53	Y.P.	Kilkerran
	E.	9.7	7.6	5.8	4.2	3.1	2.2	2.2	2.7	3.8	5.3	7.3	9.0																		
Kimba	R.	0.56	0.78	0.60	0.79	1.12	1.42	1.53	1.70	1.26	1.09	0.83	0.58	12.31	4.7	1	5	5	12	55	81	87	81	49	12	3	1	67	52	W.	Kimba
	E.	12.4	9.7	7.9	5.1	3.2	2.2	2.2	3.0	5.0	7.8	9.8	11.7																		
Kingscote	R.	0.58	0.62	0.78	1.42	2.41	3.00	3.01	2.56	1.87	1.33	0.93	0.72	19.28	7.2	3	15	17	54	92	99	99	96	85	54	24	7	18	53	K.I.	Kingscote
	E.	8.0	6.2	4.9	3.4	2.4	2.1	2.0	2.3	3.2	4.1	5.7	7.3																		
Kingston, S.E.	R.	0.79	0.68	0.96	1.88	2.98	3.82	3.53	3.10	2.37	1.73	1.19	1.16	24.19	8.4	11	18	34	74	98	100	100	98	96	76	30	21	5	51	S.E.	Kingston, S.E.
	E.	6.1	5.0	3.7	2.7	1.8	1.5	1.5	1.8	2.5	3.5	4.6	5.8																		
Koonibba	R.	0.35	0.93	0.69	0.74	1.32	1.74	1.69	1.81	0.99	0.99	0.62	0.55	12.62	4.9	2	11	13	18	62	83	85	79	27	7	4	—	62	53	W.	Koonibba
	E.	10.4	8.3	6.3	4.7	3.3	2.2	2.2	2.9	4.3	6.5	8.4	10.2																		
Koppio	R.	0.60	0.60	0.74	1.47	2.30	3.67	3.22	3.08	2.24	1.62	0.92	0.74	21.20	7.4	11	13	14	55	94	96	100	97	90	53	18	14	15	52	E.P.	Koppio
	E.	6.7	5.2	4.4	3.5	2.3	1.8	1.9	2.2	2.7	4.4	5.3	6.4																		
Kybybolite	R.	0.75	0.90	0.93	1.51	2.24	2.46	2.60	2.58	2.54	1.74	1.31	1.22	20.78	8.1	5	19	30	73	95	98	98	96	95	69	32	21	7	48	S.E.	Kybybolite
	E.	7.4	5.9	4.3	2.8	1.9	1.5	1.4	1.7	2.4	3.8	4.9	6.8																		
Lameroo	R.	0.69	0.79	0.72	1.10	1.69	1.81	1.62	1.83	1.92	1.42	0.98	0.92	15.49	6.1	4	11	7	25	81	88	95	93	69	33	13	7	36	49	M.M.	Lameroo
	E.	10.3	7.8	6.4	4.7	2.7	2.1	1.9	2.7	4.2	6.0	7.7	9.8																		
Langhorne Creek	R.	0.67	0.66	0.81	1.00	1.54	1.78	1.53	1.53	1.59	1.21	1.06	0.89	14.32	5.9	2	8	12	30	78	93	95	89	64	23	17	8	39	50	C.	Langhorne Creek
	E.	11.0	8.4	6.7	4.9	2.9	2.0	2.0	3.0	4.3	5.8	8.4	10.7																		
Laura	R.	0.85	0.71	0.81	1.45	1.79	2.32	1.99	2.23	2.08	1.63	1.06	0.87	17.84	6.7	5	8	10	36	83	97	97	95	81	39	15	3	25	49	U.N.	Laura
	E.	11.0	8.9	6.6	4.3	2.4	1.6	1.6	2.4	3.6	6.1	8.8	10.9																		
Lobethal	R.	1.18	0.93	1.24	2.68	3.96	5.80	4.90	5.04	4.20	2.81	1.65	1.36	35.75	8.7	15	24	37	83	97	100	100	99	99	82	46	29	3	46	C.	Lobethal
	E.	8.0	6.1	4.6	3.2	1.7	1.0	1.0	1.7	2.5	4.0	5.7	7.6																		
Lochiel	R.	0.74	0.66	0.58	0.92	1.59	1.84	1.60	1.98	1.79	1.29	0.92	0.79	14.70	5.7	3	5	6	25	73	89	94	91	58	21	8	2	43	51	L.N.	Lochiel
	E.	11.3	9.2	7.5	5.1	3.0	2.0	2.0	2.8	4.1	7.2	10.0	11.1																		
Lock	R.	0.52	0.87	0.59	0.84	1.54	2.30	2.30	2.55	1.85	1.24	0.98	0.70	16.08	5.8	3	10	10	20	78	89	94	93	71	22	6	7	41	53	E.P.	Lock
	E.	9.8	8.1	6.2	4.5	3.0	2.2	2.2	2.6	3.6	6.2	8.3	9.6																		
Loxton	R.	0.76	0.85	0.69	0.57	1.11	1.15	0.98	1.27	1.24	1.00	0.69	0.75	11.06	4.7	4	12	7	13	55	74	76	64	29	10	3	—	67	50	M.M.	Loxton
	E.	11.8	9.4	7.2	4.9	2.8	1.9	1.9	2.9	4.7	7.4	9.2	11.4																		
Lucindale	R.	0.86	0.68	1.00	1.90	2.53	3.43	3.30	3.03	2.56	1.93	1.22	1.22	23.76	8.4	11	18	33	79	97	100	100	98	97	78	33	22	5	49	S.E.	Lucindale
	E.	6.9	5.6	4.0	2.8	1.9	1.5	1.4	1.8	2.5	3.6	4.8	6.5																		
Lyndoch	R.	0.86	0.71	0.83	1.76	2.42	3.36	2.93	3.16	2.78	2.04	1.22	1.03	23.10	7.7	7	13	18	65	92	99	100	97	91	67</						

INDICES OF RAINFALL, EVAPORATION, AND DROUGHT--

FREQUENCY IN SOUTH AUSTRALIA--continued.

Centre	Years Rain-fall Records	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall (inches)
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Mangalo	36	R. 0.67	0.76	0.70	0.87	1.42	1.67	1.52	1.79	1.47	1.20	0.87	0.62	13.56
		E. 10.8	8.6	6.7	4.7	3.1	2.2	2.2	2.8	4.0	6.4	8.5	10.4	
Mannum	67	R. 0.64	0.54	0.78	1.02	1.24	1.34	1.13	1.26	1.25	1.00	0.73	0.68	11.61
		E. 11.7	9.0	7.2	5.0	2.9	2.0	2.1	3.1	4.6	6.8	8.9	11.1	
Manoora	51	R. 0.80	0.64	0.80	1.33	2.09	2.40	2.12	2.62	2.29	1.73	1.03	1.03	18.88
		E. 11.0	8.6	6.5	4.3	2.4	1.6	1.7	2.3	3.7	5.7	8.4	10.7	
Marrabel	61	R. 0.86	0.66	0.86	1.59	2.16	2.64	2.35	2.76	2.33	1.75	1.15	0.96	20.07
		E. 10.8	8.6	6.3	3.9	2.3	1.4	1.5	2.3	3.3	5.6	8.1	10.4	
Meadows	55	R. 1.25	0.99	1.57	2.97	4.00	5.28	4.71	4.57	4.30	2.90	1.88	1.39	35.81
		E. 8.3	6.2	4.8	3.1	1.7	1.0	1.1	1.7	2.6	4.1	5.8	7.7	
Melrose	79	R. 1.22	0.91	1.05	1.62	2.47	3.24	2.85	2.81	2.40	1.97	1.29	1.02	22.85
		E. 10.5	8.4	6.1	4.0	2.2	1.4	1.4	2.2	3.3	5.8	8.5	10.3	
Meningie	79	R. 0.69	0.61	0.86	1.48	2.17	2.57	2.34	2.16	2.00	1.45	1.01	0.80	18.14
		E. 8.4	6.5	5.2	3.8	2.6	1.8	1.9	2.8	3.6	5.0	6.4	8.3	
Milang	62	R. 0.67	0.57	0.76	1.26	1.63	2.03	1.79	1.68	1.52	1.27	0.92	0.72	14.82
		E. 10.5	7.9	6.4	4.5	2.7	1.9	2.0	2.9	4.0	5.6	7.1	9.6	
Millbrook	28	R. 1.44	1.16	1.03	2.51	4.05	4.83	4.51	4.91	4.18	2.47	1.68	1.46	34.23
		E. 7.9	6.1	4.6	3.2	1.7	1.0	1.0	1.7	2.6	4.0	5.7	7.6	
Millicent	66	R. 1.06	1.00	1.32	2.47	3.43	4.53	4.36	3.90	3.03	2.20	1.46	1.37	30.13
		E. 6.0	4.9	3.8	2.5	1.6	1.3	1.3	1.6	2.4	3.4	4.3	5.3	
Minlaton	63	R. 0.60	0.52	0.79	1.40	2.10	2.69	2.27	2.40	1.86	1.46	0.95	0.65	17.69
		E. 8.7	6.5	5.2	3.9	2.8	2.2	2.2	2.6	3.5	4.7	6.4	8.0	
Minnipa	29	R. 0.66	0.92	0.60	0.71	1.34	2.04	1.93	1.99	1.28	1.12	0.82	0.55	13.96
		E. 11.2	8.7	6.8	4.8	3.1	2.2	2.2	2.7	4.2	6.7	9.0	10.8	
Mintaro	52	R. 0.82	0.78	0.91	1.60	2.62	3.20	2.83	3.37	2.86	2.01	1.18	1.12	23.30
		E. 10.7	8.3	6.0	3.6	1.8	1.1	1.1	1.7	2.9	5.0	7.9	9.9	
Moonta	71	R. 0.61	0.58	0.81	1.40	1.83	2.09	1.82	1.70	1.38	1.20	0.81	0.66	14.94
		E. 11.2	9.0	7.2	5.2	3.1	2.4	2.3	2.8	4.2	7.1	10.1	11.1	
Morgan	62	R. 0.56	0.57	0.51	0.61	0.96	0.97	0.74	0.95	0.93	0.85	0.63	0.77	9.08
		E. 13.0	10.5	8.2	5.8	3.1	1.9	2.0	3.1	5.0	8.1	10.4	12.7	
Morphett Vale	56	R. 0.86	0.72	1.08	1.87	2.64	3.31	2.89	2.77	2.46	1.78	1.27	1.00	22.65
		E. 8.6	7.1	6.4	4.2	2.7	1.8	1.8	2.5	3.5	4.7	6.4	8.1	
Mount Barker	82	R. 1.14	0.92	1.31	2.30	3.62	4.36	4.17	4.14	3.63	2.66	1.53	1.25	31.03
		E. 8.5	6.5	5.0	3.2	1.8	1.2	1.2	1.8	2.9	4.3	6.0	7.8	
Mount Bryan	46	R. 0.74	0.87	0.68	1.02	1.68	2.15	2.01	2.34	2.11	1.36	0.91	0.99	16.86
		E. 11.3	9.0	6.4	4.3	2.2	1.7	1.7	2.4	3.3	6.1	8.6	10.8	
Mount Gambier	82	R. 1.34	1.03	1.42	2.38	3.33	3.91	4.04	3.86	3.09	2.40	1.72	1.62	30.14
		E. 6.5	5.2	4.0	2.5	1.4	1.1	1.1	1.4	2.3	3.6	4.4	5.6	
Mount Pleasant	67	R. 1.02	0.79	1.05	2.10	2.91	4.05	3.52	3.65	3.23	2.26	1.35	1.05	26.98
		E. 8.6	7.1	5.5	3.6	2.0	1.4	1.4	2.0	3.1	4.6	6.4	8.1	
Mundoora	48	R. 0.66	0.50	0.52	1.01	1.72	2.02	1.43	1.72	1.53	1.16	0.67	0.70	13.64
		E. 11.7	9.9	8.0	5.7	3.2	2.1	2.1	2.9	4.6	7.7	10.3	11.6	
Murray Bridge	57	R. 0.71	0.60	0.83	1.15	1.39	1.58	1.36	1.43	1.52	1.22	0.91	0.80	13.50
		E. 11.2	8.8	7.2	5.0	2.9	2.0	2.0	3.0	4.5	6.4	8.6	10.9	
Myponga	29	R. 1.02	1.09	0.95	2.14	3.47	4.50	4.39	3.66	3.62	2.08	1.40	1.01	29.33
		E. 8.2	6.5	5.1	3.4	1.8	1.2	1.3	1.9	2.9	4.4	6.1	7.8	
Nackara	37	R. 0.87	0.75	0.71	0.63	1.08	1.26	0.99	1.20	0.99	0.87	0.90	0.77	11.02
		E. 12.1	9.5	7.1	4.9	2.7	2.0	2.0	2.8	4.7	8.1	9.6	11.8	
Nairne	59	R. 1.16	0.92	1.20	2.16	3.00	3.98	3.60	3.59	3.32	2.33	1.43	1.13	27.82
		E. 8.6	6.7	5.2	3.5	2.0	1.4	1.4	2.0	3.2	4.6	6.4	8.2	
Naracoorte	75	R. 0.86	0.74	1.00	1.78	2.43	3.14	2.79	2.78	2.58	1.93	1.35	1.16	22.59
		E. 7.2	5.7	4.1	2.8	1.9	1.5	1.4	1.7	2.4	3.7	4.8	6.7	
Narridy	63	R. 0.67	0.67	0.77	1.22	1.75	2.09	1.70	1.99	1.75	1.37	0.92	0.85	15.75
		E. 11.3	9.0	6.9	5.0	2.7	1.8	1.9	2.6	3.9	6.5	9.1	11.1	
Noarlunga	66	R. 0.73	0.70	0.99	1.71	2.51	3.09	2.68	2.50	2.24	1.60	1.08	0.82	20.65
		E. 8.6	7.1	6.0	4.1	2.6	1.8	1.9	2.4	3.4	4.6	6.3	7.8	
Nuriootpa	60	R. 0.90	0.71	0.90	1.62	2.17	2.83	2.46	2.76	2.37	1.79	1.19	1.12	20.82
		E. 9.1	7.5	6.1	3.7	2.1	1.3	1.4	2.0	3.0	5.1	7.5	8.8	
Oodla Wirra	23	R. 0.96	0.71	0.60	0.74	1.03	1.20	1.03	1.34	1.04	0.81	0.91	0.96	11.33
		E. 11.9	9.4	6.9	4.7	2.6	2.0	2.0	2.7	4.3	7.3	9.5	11.6	
Orroroo	70	R. 1.02	0.66	0.63	0.89	1.24	1.69	1.33	1.58	1.21	1.10	0.96	0.81	13.12
		E. 12.3	9.6	7.2	5.0	2.6	2.0	2.0	2.7	4.5	7.3	9.8	12.0	

Mean Rainfall Season (mnts.)	Percentage Seasons with Rainfall Effective for--												Percentage Drought Year Frequency (%)	Air Temp. (°F.) July	Region	Centre
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.				
5.5	3	13	10	18	65	87	88	83	56	13	5	1	48	53	E.P.	Mangalo
4.8	1	4	6	16	59	82	79	72	40	13	4	4	65	49	M.M.	Mannum
6.8	2	8	12	49	87	98	97	96	85	50	14	6	23	47	L.N.	Manoora
7.1	3	6	13	54	88	98	98	97	87	54	16	5	19	48	L.N.	Marrabel
8.9	10	26	45	86	98	100	100	100	98	91	51	28	2	47	C.	Meadows
7.2	7	8	20	55	88	95	96	94	85	49	19	8	18	48	U.N.	Melrose
7.0	4	10	19	52	88	96	98	94	82	47	17	8	20	51	M.M.	Meningie
6.0	1	2	10	30	77	92	95	91	65	29	12	6	37	51	C.	Milang
8.6	13	26	32	81	97	100	100	97	97	81	41	32	4	46	C.	Millbrook
9.1	20	25	45	87	99	100	100	99	98	87	48	31	1	50	S.E.	Millicent
6.9	2	10	17	38	84	95	96	94	73	37	12	1	22	53	Y.P.	Minlaton
5.2	1	15	7	13	65	82	90	87	50	17	7	3	55	52	W.	Minnipa
7.5	2	7	16	60	90	98	99	97	90	63	20	12	14	47	L.N.	Mintaro
5.7	1	7	6	27	75	88	91	85	42	17	6	1	43	53	Y.P.	Moonta
3.4	2	4	4	7	41	61	47	41	20	7	2	—	95	50	M.M.	Morgan
7.5	3	14	23	52	92	97	98	97	81	50	15	5	14	51	C.	Morphett Vale
8.5	11	21	38	80	97	100	100	99	99	84	37	24	4	47	C.	Mount Barker
6.3	5	9	6	30	84	94	96	95	80	32	11	4	32	47	U.N.	Mount Bryan
9.6	21	27	46	90	100	100	100	100	100	89	61	38	—	49	S.E.	Mount Gambier
8.0	9	16	20	66	93	99	100	97	91	71	30	12	8	47	C.	Mount Pleasant
5.4	1	2	4	21	72	89	89	80	47	12	3	1	50	52	L.N.	Mundoora
5.5	2	8	12	25	72	89										

INDICES OF RAINFALL, EVAPORATION, AND DROUGHT—

FREQUENCY IN SOUTH AUSTRALIA—continued.

Centre	Years Rainfall Records	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall (inches)	
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
Owen	19	R. 1.03	0.89	0.62	1.38	1.52	1.89	1.78	2.01	1.91	1.39	1.00	0.73	16.15	
		E. 11.2	8.9	6.9	4.6	2.9	1.8	1.8	2.5	3.8	6.0	8.7	10.6		
Palmer	41	R. 0.79	0.71	0.77	1.10	1.61	1.87	1.76	2.13	2.04	1.37	0.99	0.87	16.01	
		E. 11.2	8.3	6.7	4.9	2.7	1.9	1.9	2.8	4.1	5.9	7.9	10.3		
Parilla	32	R. 0.69	0.70	0.61	0.95	1.48	1.58	1.36	1.65	1.64	1.23	0.88	0.82	13.59	
		E. 10.4	7.9	6.5	4.3	2.7	2.1	1.9	2.7	4.2	6.1	7.9	10.1		
Parrakie	35	R. 0.61	0.76	0.72	0.88	1.68	1.65	1.49	1.89	1.77	1.33	0.89	0.82	14.49	
		E. 10.3	7.8	6.4	4.6	2.6	2.1	1.9	2.6	4.1	6.0	7.7	9.8		
Paruna	28	R. 0.61	0.76	0.45	0.71	1.14	1.16	1.23	1.32	1.20	1.13	0.61	0.78	11.10	
		E. 11.5	9.1	7.2	4.9	2.8	2.0	1.9	2.8	4.7	6.9	8.6	11.2		
Paskeville	56	R. 0.69	0.53	0.72	1.21	1.81	2.24	1.85	2.10	1.57	1.33	0.78	0.69	15.52	
		E. 11.2	8.7	7.5	5.1	3.0	2.2	2.3	3.0	4.0	6.9	10.0	11.0		
Peake	34	R. 0.74	0.83	0.91	1.07	1.75	1.79	1.64	1.97	1.81	1.40	0.91	0.89	15.71	
		E. 10.2	7.8	6.4	4.7	2.7	2.0	1.9	2.7	4.2	6.0	7.7	9.8		
Penneshaw	30	R. 0.73	0.73	0.69	1.42	2.04	2.82	2.97	2.61	2.18	1.46	1.11	0.77	19.53	
		E. 7.8	6.1	5.0	3.5	2.4	2.0	1.9	2.2	3.2	4.2	5.8	7.4		
Penola	82	R. 1.05	0.84	1.20	1.90	2.86	3.44	3.24	3.32	2.80	2.25	1.51	1.31	25.72	
		E. 6.9	5.4	4.0	2.6	1.8	1.3	1.2	1.5	2.4	3.7	4.6	6.1		
Penong	45	R. 0.34	0.68	0.61	0.82	1.67	1.88	1.73	1.68	1.01	0.86	0.69	0.48	12.45	
		E. 10.0	7.9	6.1	4.8	3.3	2.2	2.2	2.8	4.0	6.2	8.4	10.0		
Peterborough	62	R. 0.86	0.62	0.67	0.89	1.22	1.49	1.24	1.58	1.33	1.03	0.93	0.94	12.85	
		E. 11.7	9.4	6.6	4.4	2.4	1.5	1.5	2.4	3.3	6.5	9.2	11.2		
Pinnaroo	36	R. 0.66	0.86	0.81	0.84	1.52	1.53	1.38	1.59	1.56	1.22	0.98	0.79	13.74	
		E. 10.5	8.1	6.7	4.8	2.7	2.1	1.9	2.7	4.3	6.2	8.0	10.3		
Point Pass	22	R. 0.89	0.77	0.62	1.12	1.85	1.85	1.94	2.52	2.13	1.43	0.90	0.97	16.99	
		E. 11.6	8.5	6.7	4.5	2.7	1.9	1.9	2.8	4.3	5.8	8.5	11.0		
Port Augusta	83	R. 0.59	0.53	0.70	0.75	1.06	1.13	0.73	0.90	0.87	0.88	0.69	0.58	9.41	
		E. 13.5	11.3	8.3	6.0	3.2	2.1	2.1	3.3	5.1	8.7	10.8	12.9		
Port Broughton	59	R. 0.70	0.60	0.62	1.16	1.61	1.93	1.49	1.67	1.45	1.20	0.78	0.66	13.87	
		E. 11.5	9.8	7.9	5.7	3.3	2.2	2.4	3.0	4.6	7.5	10.4	11.3		
Port Elliot	76	R. 0.78	0.71	0.95	1.60	2.37	2.77	2.59	2.35	2.21	1.63	1.12	0.86	19.94	
		E. 8.3	6.7	5.4	3.9	2.5	1.9	1.9	2.3	3.3	4.6	6.1	8.0		
Port Elliston	61	R. 0.41	0.52	0.60	1.08	1.48	2.02	3.18	2.66	2.35	1.47	1.15	0.75	0.48	16.67
		E. 8.0	6.4	5.1	4.0	2.6	2.0	2.0	2.4	3.3	5.4	7.0	7.8		
Port Germein	61	R. 0.74	0.54	0.71	1.07	1.48	1.53	1.15	1.87	1.22	1.12	0.79	0.81	12.53	
		E. 11.8	9.9	8.2	6.0	3.4	2.3	2.3	2.9	4.9	7.8	10.2	11.6		
Port Lincoln	77	R. 0.57	0.56	0.82	1.41	2.29	3.12	2.98	2.66	1.97	1.36	0.87	0.68	19.29	
		E. 6.9	5.2	4.6	3.6	2.5	1.9	2.0	2.3	2.9	4.6	5.5	6.5		
Port Pirie	66	R. 0.75	0.57	0.78	1.13	1.52	1.75	1.25	1.42	1.33	1.20	0.80	0.77	13.27	
		E. 11.8	9.9	8.3	6.0	3.4	2.3	2.3	3.0	4.9	7.8	10.1	11.5		
Port Victoria	64	R. 0.55	0.55	0.66	1.28	2.00	2.21	1.85	1.90	1.58	1.26	0.90	0.69	15.43	
		E. 10.0	7.8	6.2	4.4	3.0	2.2	2.2	2.7	3.8	5.7	7.7	9.5		
Port Vincent	39	R. 0.53	0.59	0.58	0.90	1.48	2.14	1.67	1.84	1.71	1.25	0.83	0.64	14.16	
		E. 9.5	7.3	5.6	4.4	2.9	2.2	2.2	2.6	3.6	5.6	8.0	9.1		
Port Wakefield	69	R. 0.70	0.66	0.86	1.15	1.51	1.62	1.36	1.48	1.26	1.11	0.78	0.65	13.14	
		E. 11.8	9.7	7.9	5.6	3.0	2.2	2.2	3.1	4.9	7.6	9.7	11.5		
Quorn	62	R. 0.75	0.69	0.59	0.87	1.35	1.70	1.40	1.68	1.22	1.12	0.89	0.73	12.99	
		E. 12.4	9.9	7.8	5.9	3.0	2.0	2.0	3.1	4.7	7.9	10.2	12.1		
Redhill	64	R. 0.71	0.66	0.71	1.30	1.87	2.32	1.89	2.22	1.74	1.42	0.89	0.83	16.56	
		E. 11.3	9.2	7.1	5.2	2.8	1.9	2.0	2.7	4.1	6.8	9.2	11.1		
Renmark	53	R. 0.62	0.74	0.60	0.70	1.01	1.07	0.85	1.05	1.11	1.04	0.77	0.74	10.30	
		E. 12.2	9.5	7.6	5.3	2.9	1.9	1.9	3.0	4.8	7.7	9.8	11.7		
Riverton	67	R. 0.90	0.71	0.99	1.73	2.31	2.72	2.39	2.73	2.37	1.84	1.26	0.95	20.90	
		E. 10.7	8.4	6.2	3.9	2.2	1.4	1.4	2.2	3.3	5.6	8.0	10.2		
Robe	82	R. 0.84	0.71	1.02	1.81	3.04	4.01	3.94	3.27	3.28	1.69	1.06	1.08	24.75	
		E. 5.5	4.3	3.4	2.6	1.7	1.4	1.5	1.8	2.4	3.4	4.3	5.1		
Roseworthy	56	R. 0.90	0.66	0.78	1.51	1.78	2.35	1.89	2.12	1.85	1.61	1.05	0.88	17.38	
		E. 11.2	8.9	6.8	4.5	2.5	1.7	1.7	2.5	3.5	5.8	8.3	10.4		
Rudall	20	R. 0.64	0.80	0.53	0.96	1.28	1.37	1.68	1.67	1.26	1.05	0.97	0.58	12.79	
		E. 10.8	8.7	6.4	4.6	3.0	2.2	2.2	2.7	3.9	6.5	8.5	10.1		
Saddleworth	71	R. 0.87	0.75	0.94	1.62	2.18	2.47	2.26	2.52	2.21	1.72	1.17	0.96	19.67	
		E. 10.9	8.6	6.3	4.0	2.3	1.4	1.5	2.3	3.4	5.6	8.2	10.6		

Mean Rainfall Season (mnths.)	Percentage Seasons with Rainfall Effective for—												Percentage Drought Year Frequency (%)	Mean Air Temp. (°F.) July	Region	Centre
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.				
6.3	5	5	9	38	82	94	98	95	78	33	10	5	32	50	L.N.	Owen
6.1	4	9	9	24	70	88	94	90	70	32	16	7	36	48	C.	Palmer
5.7	6	12	10	20	73	84	93	87	64	25	12	7	43	49	M.M.	Parilla
5.9	3	10	11	21	77	81	93	90	73	28	11	8	39	49	M.M.	Parrakie
4.8	1	6	3	11	57	73	77	71	30	15	1	—	65	50	M.M.	Paruna
5.9	3	3	8	29	75	90	94	86	64	21	7	3	39	52	Y.P.	Paskeville
6.0	3	8	11	21	78	90	95	91	67	25	9	8	37	50	M.M.	Peake
7.4	3	8	9	45	94	98	100	95	83	53	20	5	15	52	K.I.	Penneshaw
8.9	14	19	35	81	99	99	100	99	99	82	38	27	2	48	S.E.	Penola
5.1	2	11	12	19	63	89	88	76	29	6	6	4	57	53	W.	Penong
5.6	5	6	9	23	69	86	89	87	58	15	10	6	46	46	U.N.	Peterborough
5.7	5	12	11	21	71	82	91	89	61	27	15	7	43	49	M.M.	Pinnaroo
6.4	4	4	8	31	77	87	95	93	70	36	10	2	30	48	L.N.	Point Pass
3.0	1	6	8	9	41	68	55	37	17	6	5	1	93	53	U.N.	Port Augusta
5.3	3	4	5	21	65	89	90	79	43	14	2	1	52	53	L.N.	Port Broughton
7.4	5	12	19	58	89	97	99	96	91	59	22	6	15	51	C.	Port Elliot
6.2	2	9	12	35	82	93	95	91	67	30	11	5	34	53	E.P.	Port Elliston
4.8	2	3	7	14	53	83	79	71	30	19	5	3	65	54	U.N.	Port Germein
7.1	6	11	19	50	91	95	98	96	85	48	18	8	19	53	E.P.	Port Lincoln
4.9	3	4	8	16	53	83	79	73	28	19	4	2	62	54	U.N.	Port Pirie
5.9	2	6	11	28												

INDICES OF RAINFALL, EVAPORATION, AND DROUGHT--

FREQUENCY IN SOUTH AUSTRALIA--continued.

Centre	Years Rain-fall Records	Mean Monthly Rainfall and Evaporation (inches)												Annual Rainfall (inches)
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Salisbury	70	R. 0.81	0.65	0.92	1.60	2.15	2.70	2.10	2.33	1.91	1.52	1.06	0.88	18.63
		E. 10.9	8.7	6.8	4.4	2.5	1.9	1.8	2.4	3.4	5.2	7.8	9.4	
Sandalwood	29	R. 0.68	0.68	0.56	0.73	1.47	1.58	1.34	1.58	1.50	1.19	0.91	0.94	13.34
		E. 11.3	8.9	7.1	4.9	2.9	2.0	1.9	2.7	4.6	6.7	8.6	11.1	
Sedan	62	R. 0.66	0.58	0.65	0.89	1.23	1.49	1.17	1.50	1.32	1.09	0.72	0.65	11.95
		E. 11.8	8.7	7.0	5.1	2.9	2.1	2.1	3.1	4.6	6.7	8.8	11.0	
Smithfield	44	R. 0.77	0.75	0.88	1.26	2.08	2.48	2.01	2.30	2.03	1.49	1.11	0.88	18.02
		E. 11.0	8.8	6.9	4.4	2.5	1.8	1.8	2.4	3.4	5.4	7.9	9.6	
Snowtown	62	R. 0.72	0.59	0.70	1.24	1.78	2.17	1.76	2.14	1.64	1.36	0.90	0.76	15.76
		E. 11.4	9.2	7.0	4.8	2.8	1.8	1.9	2.6	3.8	6.4	9.0	11.1	
Spalding	40	R. 0.82	0.82	0.74	1.04	1.93	2.32	2.04	2.47	2.25	1.65	1.07	1.08	18.23
		E. 11.1	8.8	6.6	4.3	2.5	1.7	1.7	2.5	3.6	6.0	8.7	10.8	
Stansbury	63	R. 0.65	0.52	0.73	1.25	1.97	2.43	2.18	2.20	1.91	1.44	0.88	0.62	16.78
		E. 9.1	6.7	5.4	4.1	2.8	2.2	2.2	2.5	3.5	5.2	7.0	8.3	
Stirling West	59	R. 1.66	1.25	1.84	3.74	5.45	7.67	6.30	6.29	5.17	3.57	2.20	1.84	46.98
		E. 6.7	6.2	3.7	2.6	1.4	0.8	0.8	1.4	1.9	3.4	4.7	5.8	
Stookport	56	R. 0.88	0.64	0.79	1.42	1.77	2.21	1.86	2.18	2.03	1.58	1.11	0.96	17.43
		E. 11.0	8.8	6.6	4.2	2.4	1.6	1.6	2.3	3.5	5.8	8.3	10.4	
Strathalbyn	82	R. 0.84	0.72	0.99	1.46	2.19	2.47	2.48	2.34	2.21	1.69	1.11	0.90	19.40
		E. 9.0	6.8	5.2	3.7	2.2	1.5	1.6	2.1	3.3	4.9	6.7	8.3	
Streaky Bay	65	R. 0.42	0.53	0.59	0.97	1.83	2.81	2.36	2.04	1.32	0.98	0.73	0.43	15.01
		E. 9.7	7.6	5.8	4.3	2.7	2.0	2.0	2.4	3.5	6.1	8.1	9.7	
Sutherland	45	R. 0.58	0.58	0.63	0.63	1.11	1.30	1.03	1.36	1.18	0.95	0.78	0.72	10.85
		E. 11.8	8.9	7.2	5.3	2.8	1.9	2.0	2.9	4.5	6.9	9.1	11.4	
Swan Reach	44	R. 0.61	0.71	0.68	0.62	1.15	1.18	0.96	1.15	1.21	0.95	0.71	0.70	10.63
		E. 12.1	9.7	7.4	5.5	2.8	2.0	2.0	3.0	4.7	7.5	9.4	11.5	
Tailem Bend	35	R. 0.79	0.80	0.89	1.00	1.68	1.69	1.52	1.68	1.77	1.36	0.99	0.98	15.15
		E. 11.0	8.6	7.1	4.9	2.9	2.0	2.0	3.0	4.4	6.2	8.5	10.8	
Talia	35	R. 0.28	0.50	0.56	0.69	1.69	2.61	2.26	2.19	1.53	0.94	0.79	0.51	14.55
		E. 8.8	6.9	5.6	4.1	2.6	2.0	2.0	2.4	3.4	5.8	7.5	8.7	
Tanunda	75	R. 0.91	0.67	1.00	1.75	2.39	3.08	2.61	2.85	2.50	1.89	1.22	1.00	21.87
		E. 8.9	7.2	5.9	3.5	2.0	1.3	1.4	2.0	3.0	4.6	6.6	8.5	
Tarlee	61	R. 0.87	0.66	0.79	1.51	2.00	2.28	1.97	2.31	2.09	1.62	1.14	0.95	18.19
		E. 11.0	8.6	6.4	4.1	2.3	1.5	1.5	2.2	3.4	5.7	8.2	10.5	
Teatree Gully	45	R. 0.99	0.90	1.22	2.06	3.23	4.16	3.22	3.45	3.00	2.03	1.53	1.26	27.05
		E. 8.6	7.0	4.8	3.4	1.9	1.4	1.4	1.8	3.1	4.5	6.3	8.0	
Terowie	61	R. 0.83	0.81	0.58	0.89	1.15	1.47	1.30	1.66	1.42	1.14	0.93	0.99	13.17
		E. 11.5	9.3	6.5	4.3	2.3	1.6	1.6	2.4	3.5	6.4	9.0	11.2	
Tintinara	43	R. 0.70	0.78	0.86	1.46	2.14	2.37	2.12	2.24	2.18	1.64	1.22	1.06	18.77
		E. 8.3	6.6	5.0	4.0	2.3	1.8	1.8	2.3	3.2	4.9	6.2	8.0	
Truro	63	R. 0.81	0.70	0.90	1.50	2.06	2.58	2.29	2.64	2.24	1.76	1.17	0.94	19.59
		E. 11.0	8.1	6.2	3.8	2.1	1.3	1.4	2.3	3.2	5.5	8.0	10.1	
Tumby Bay	36	R. 0.37	0.64	0.66	0.90	1.47	1.90	1.97	1.81	1.58	1.22	0.90	0.71	14.13
		E. 8.1	6.2	4.9	4.0	2.7	2.1	2.1	2.4	3.1	4.9	6.2	7.7	
Two Wells	62	R. 0.76	0.56	0.75	1.38	1.80	2.25	1.80	1.87	1.57	1.33	0.88	0.82	15.77
		E. 11.3	9.2	7.1	5.0	2.7	1.9	1.8	2.7	4.0	5.8	9.0	10.8	
Ungarra	33	R. 0.41	0.79	0.71	0.89	1.83	2.30	2.44	2.28	2.01	1.42	0.98	0.73	16.79
		E. 8.3	6.5	5.2	4.4	2.8	2.1	2.1	2.5	3.3	5.2	6.8	8.1	
Uraidla	52	R. 1.47	1.13	1.78	3.38	5.21	7.12	5.90	5.82	4.83	3.15	1.96	1.72	43.47
		E. 6.9	6.3	4.0	2.8	1.5	0.8	0.8	1.6	2.1	3.7	4.8	6.0	
Victor Harbour	60	R. 0.85	0.72	0.94	1.67	2.51	3.11	2.90	2.54	2.39	1.77	1.12	0.87	21.39
		E. 8.2	6.5	5.1	3.7	2.4	1.8	1.8	2.2	3.2	4.4	5.8	7.6	
Virginia	62	R. 0.80	0.61	0.83	1.41	2.01	2.43	1.91	2.13	1.78	1.42	1.01	0.90	17.24
		E. 11.2	9.0	7.2	4.8	2.6	1.9	1.8	2.6	3.9	5.2	6.7	10.5	
Waikerie	42	R. 0.55	0.90	0.49	0.57	0.85	1.11	0.77	1.03	1.00	0.90	0.67	0.76	9.60
		E. 13.2	10.2	8.1	5.7	3.1	1.9	2.0	3.1	5.0	8.2	10.6	12.8	
Waite Institute	22	R. 1.09	1.23	0.90	2.00	2.98	2.91	3.14	3.09	2.71	1.75	1.46	1.12	24.38
		E. 8.6	7.0	6.5	4.0	2.7	1.7	1.8	2.3	3.2	4.7	6.2	7.9	
Walleraro	79	R. 0.64	0.54	0.80	1.23	1.80	2.01	1.58	1.60	1.32	1.16	0.76	0.59	14.03
		E. 11.3	9.4	7.6	5.5	3.2	2.4	2.4	2.9	4.4	7.3	10.0	11.2	
Warooka	71	R. 0.55	0.56	0.64	1.31	2.19	2.63	2.59	2.42	1.87	1.33	0.83	0.56	17.48
		E. 8.6	6.4	5.2	3.9	2.8	2.1	2.1	2.5	3.5	4.7	6.4	7.9	

Mean Rainfall Season	Percentage Seasons with Rainfall Effective for--												Percentage Drought Year Pre-fre-quency (%)	Mean Air Temp. (°F.) July	Region	Centre
	(mnths.)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.				
6.9	4	8	11	44	86	94	97	94	79	42	15	6	22	51	C.	Salisbury
5.4	3	3	4	12	65	82	91	85	46	17	9	3	50	50	M.M.	Sandalwood
4.9	2	6	6	14	57	81	85	78	40	19	3	5	62	48	L.N.	Sedan
6.6	4	5	13	38	83	96	97	92	81	41	15	7	27	51	C.	Smithfield
6.0	5	3	9	35	83	89	94	93	69	28	8	1	37	50	L.N.	Snowtown
6.5	5	9	7	37	86	95	98	93	81	43	16	5	28	47	L.N.	Spalding
6.5	3	8	13	39	87	93	96	95	77	44	10	1	28	53	Y.P.	Stansbury
10.1	28	33	55	92	98	100	100	100	100	95	61	45	—	46	C.	Stirling West
6.7	3	5	12	42	85	95	96	95	83	44	15	5	25	50	L.N.	Stookport
7.3	4	9	19	45	91	96	97	95	82	49	19	10	16	50	C.	Strathalbyn
5.8	4	7	9	22	78	90	92	90	55	18	8	4	41	53	W.	Streaky Bay
4.7	3	4	6	15	48	75	72	69	37	14	6	4	67	49	L.N.	Sutherland
4.5	4	4	6	13	49	72	74	63	25	10	2	2	72	50	M.M.	Swan Reach
5.8	3	8	13	22	77	89	92	84	68	27	10	8	41	50	M.M.	Tailem Bend
5.8	2	9	11	21	79	89	94	90	61	20	7	3	41	53	W.	Talia
7.6	5	11	18	62	92	99	99	97	87	60	25	10	13	48	C.	Tanunda
6.9	3	3	12	48	87	97	97	94	84	48	16	5	22	49	L.N.	Tarlee
8.2	8	19	27	74	96	99	100	98	96	73	37	23	7	50	C.	Teatree Gully
5.6	8	5	7	25	70	89	91	89	63	23	7	5	46	46	U.N.	Terowie
7.1	4	13	19	50	87	95	98	93	84	51	24	6	19	50	S.E.	Tintinara
7.1	2	9	17	52	87	97	97	96	85	49	16	6	19	48	L.N.	Truro
6.1	2	7	11	27	63	87	95	93	67	30	12	5	36	53	E.P.	Tumby Bay
6.0	5	2	6	26	77	92	94	92	65	25	6	2	37	52	C.	Two Wells
6.3	2	9	12	28	77	92	96	93	71	36	17	7	32	53	E.P.	Ungarra
9.9	26	35	54	92	99	100	100	100	100	91	58	42	—	46	C.	Uraidla
7.6	8	11	19	61	92	96	100	96	93	65	27	9	13	51	C.	Victor Harbour
6.5	3	6	11	37	86	92	97	91	72	38	10	4	28	52	C.	Virginia
3.8	2	11	2	7	37	70	47	43	22	7	2	—	89	50	M.M.	Waikerie
7.5	8	17	23	68	94	99	99	97	92	66	25	13	14	51	C.	Waite Institute
5.3	3	4	7	23	73	87	86	81	42	15	4	1	52	53	Y.P.	Walleraro
6.7	1	10	12	40	86	95	97	95	74	40	11	2	25	53	Y.P.	Warooka

INDICES OF RAINFALL, EVAPORATION, AND DROUGHT--

Centre	Years Rain-fall Records	Mean Monthly Rainfall and Evaporation (inches)												Mean Annual Rainfall (inches)
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Watervale	62	R. 1.09	0.84	1.11	2.21	2.98	3.65	3.16	3.65	3.10	2.25	1.44	1.26	26.74
		E. 10.6	8.1	5.7	3.3	1.7	0.9	1.0	1.6	2.8	4.9	7.7	9.8	
Weetulla	55	R. 0.61	0.58	0.72	1.44	1.85	2.29	1.94	2.05	1.59	1.25	0.86	0.67	15.85
		E. 10.8	8.2	6.7	4.8	3.0	2.2	2.3	2.8	3.9	6.4	9.5	10.4	
Wellington	60	R. 0.81	0.61	0.83	1.25	1.57	1.84	1.50	1.64	1.60	1.32	0.99	0.83	14.79
		E. 11.0	8.5	7.0	4.9	2.9	2.0	2.0	3.0	4.4	6.1	8.5	10.8	
Whyalla	36	R. 0.71	0.71	0.63	0.52	1.06	1.04	0.84	1.03	0.95	0.93	0.84	0.76	10.07
		E. 12.7	10.4	8.1	6.0	3.3	2.4	2.4	3.1	5.0	8.2	10.5	12.3	
Williamstown	62	R. 1.01	0.75	0.97	2.14	3.04	4.40	3.61	3.80	2.96	2.24	1.40	1.08	27.40
		E. 8.5	6.9	4.8	3.2	2.0	1.3	1.3	1.9	3.0	4.5	6.0	8.1	
Willowie	44	R. 0.62	0.72	0.69	0.69	1.16	1.55	1.26	1.39	1.23	1.00	0.79	0.80	11.95
		E. 12.0	9.4	7.0	4.9	2.7	1.9	1.9	2.8	4.2	7.0	9.6	11.7	
Willunga	81	R. 0.85	0.78	1.19	2.00	3.34	3.88	3.59	3.20	2.82	2.11	1.26	0.92	25.94
		E. 8.5	7.1	5.4	3.6	2.2	1.6	1.6	2.0	3.1	4.4	6.0	7.7	
Wilmington	64	R. 0.91	0.64	0.77	1.29	1.85	2.34	2.01	2.17	1.80	1.45	1.01	0.85	17.09
		E. 11.6	9.1	6.7	4.7	2.5	1.7	1.7	2.7	3.8	6.7	9.3	11.3	
Wirrabara	66	R. 0.84	0.71	0.91	1.43	1.99	2.62	2.35	2.48	2.12	1.63	1.12	0.98	19.23
		E. 10.8	8.7	6.4	4.2	2.3	1.5	1.5	2.3	3.4	5.9	8.7	10.6	
Wirrega	32	R. 0.88	1.14	0.92	1.51	2.24	2.50	2.42	2.48	2.48	1.76	1.52	1.14	20.99
		E. 7.8	6.4	4.6	3.7	2.1	1.7	1.7	2.0	2.6	4.4	5.8	7.4	
Wolseley	54	R. 0.72	0.81	0.78	1.51	1.90	2.30	2.18	2.26	2.18	1.76	1.14	0.98	18.52
		E. 7.9	6.5	4.7	3.6	2.1	1.7	1.7	2.0	2.7	4.5	5.9	7.6	
Woodside	60	R. 1.14	0.91	1.15	2.29	3.56	4.99	4.31	4.47	3.89	2.58	1.54	1.25	32.08
		E. 7.9	6.2	4.7	3.2	1.8	1.1	1.1	1.9	2.8	4.1	5.9	7.7	
Yaaka	62	R. 0.64	0.69	0.62	1.17	1.70	2.07	1.73	2.09	1.75	1.31	0.87	0.88	15.52
		E. 11.2	8.9	6.7	4.5	2.6	1.7	1.8	2.5	3.7	6.2	8.8	11.0	
Yalkuri	23	R. 0.92	0.74	0.65	1.26	2.04	2.32	2.33	2.05	1.90	1.49	0.90	0.73	17.33
		E. 8.4	6.5	5.2	3.8	2.6	1.9	1.9	2.8	3.6	5.0	6.4	8.3	
Yankalilla	50	R. 0.75	0.76	1.09	1.66	2.82	3.66	3.10	2.77	2.50	1.66	1.12	0.87	22.76
		E. 8.3	6.3	5.4	3.8	2.0	1.5	1.6	2.1	3.2	4.6	6.4	7.9	
Yeelanna	30	R. 0.83	0.66	0.58	0.90	1.83	2.45	2.60	2.43	1.81	1.18	0.70	0.55	16.02
		E. 8.4	6.5	5.3	4.3	2.7	2.2	2.2	2.5	3.3	5.1	6.7	7.9	
Yongala	62	R. 0.79	0.69	0.64	1.03	1.35	1.73	1.47	1.83	1.52	1.23	1.03	1.01	14.32
		E. 10.9	8.8	6.3	3.8	1.9	1.1	1.2	2.0	3.1	5.9	8.4	10.6	
Yorke town	63	R. 0.56	0.56	0.71	1.29	2.01	2.55	2.30	2.27	1.86	1.31	0.87	0.60	16.89
		E. 8.5	6.2	5.1	3.8	2.7	2.1	2.1	2.5	3.4	4.6	6.3	7.9	

FREQUENCY IN SOUTH AUSTRALIA--continued.

Mean Rainfall Season (mnts.)	Percentage Seasons with Rainfall Effective for--												Percentage Drought Year Frequency (%)	Mean Air Temp. (°F.) July	Region	Centre
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.				
7.9	5	13	21	70	94	99	99	97	94	71	24	11	9	47	L.N.	Watervale
6.1	2	3	7	37	80	90	93	89	65	28	8	1	36	53	Y.P.	Weetulla
5.8	3	3	12	27	75	90	93	86	61	31	11	5	41	50	M.M.	Wellington
4.0	3	4	5	4	27	52	55	46	12	5	3	3	32	54	W.	Whyalla
3.3	12	13	23	76	95	98	100	97	93	75	34	14	6	47	C.	Williamstown
5.0	6	11	11	22	65	82	82	75	52	17	5	2	59	48	U.N.	Willowie
8.0	6	14	23	70	95	99	100	98	95	72	29	8	8	50	C.	Willunga
6.2	8	5	11	35	80	91	95	89	67	27	11	5	34	49	U.N.	Wilmington
6.8	4	5	13	38	82	93	96	96	82	43	14	2	23	48	U.N.	Wirrabara
7.7	6	16	20	59	92	93	100	94	92	62	29	8	12	49	S.E.	Wirrega
7.4	3	15	17	55	89	93	98	95	91	60	24	12	15	48	S.E.	Wolseley
8.5	11	23	35	78	97	100	100	98	97	80	45	25	4	46	C.	Woodside
6.1	2	5	5	35	83	96	96	92	76	32	10	5	36	48	L.N.	Yaaka
6.8	4	7	12	47	85	93	96	90	81	45	15	7	23	51	M.M.	Yalkuri
7.5	4	15	18	62	95	97	100	96	88	60	24	8	14	52	C.	Yankalilla
6.2	2	9	11	28	82	91	97	92	72	33	11	6	34	53	E.P.	Yeelanna
6.1	7	6	8	34	77	90	92	90	71	30	14	6	36	45	U.N.	Yongala
6.8	3	11	12	41	86	95	97	94	78	37	11	2	23	53	Y.P.	Yorke town