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COMMONWEALTH BUREAU OF METEOROLOGY,  
MELBOURNE.

---

ON THE CLIMATE OF THE YASS-CANBERRA  
DISTRICT.

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(ISSUED DECEMBER, 1910.)

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H. A. HUNT,

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ERRATA AND ADDENDA IN CONNEXION WITH TABLE SHOWING COMPARISON OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Cities.	Height above Sea Level.	Rainfall.			Temperature.					
		Average.	Highest.	Lowest.	Mean Summer.	Mean Winter.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.
	feet									
Amsterdam .. ..	6	27.29	40.59	17.60	63.2	36.8	90.0	4.1	64.4	35.4
Athens .. ..	351	15.48	33.32	4.35	69.7	59.5	106.5	19.6	90.4	42.0
Bombay .. ..	..	71.15	114.80	33.41	..	..	100.0	..	84.8	74.2
Brussels .. ..	328	28.35	41.18	17.73	62.6	36.0	95.5	-4.4	63.7	34.5
Budapest .. ..	500	25.20	35.28	16.79	68.6	30.2	98.6	-5.1	70.4	28.2
Calcutta .. ..	21	61.98	89.32	39.38	..	..	..	..	85.4	65.5
Chicago .. ..	823	33.54	..	24.52	..	26.3	..	-23.0	72.3	24.0
Christiania .. ..	82	22.52	31.73	16.26	54.5	29.5	95.0	..	..	..
Colombo .. ..	40	83.83	139.70	51.00	81.5	70.0	95.8	65.0	82.6	79.1
Edinburgh .. ..	441	25.21	32.05	16.44	55.9	38.8	85.3	16.6	67.2	38.3
Hong Kong .. ..	110	84.10	119.72	..	..	..	97.0	32.0	..	58.1
Johannesburg .. ..	5,750	31.63	50.00	21.66	65.4	54.4	..	..	68.2	48.9
Madras .. ..	22	49.06	88.41	..	..	..	113.0	57.5	87.6	75.3
Marseilles .. ..	..	21.88	..	12.28	70.3	45.3	..	..	83.1	56.3
Moscow .. ..	526	18.94	29.28	12.07	63.4	14.7	99.5	-44.5	66.1	11.9
New York .. ..	314	42.47	59.68	28.78	72.1	31.7	100.0	-6.0	74.5	30.3
San Francisco .. ..	155	22.83	..	..	59.0	51.0	101.0	..	..	..
Singapore .. ..	8	91.99	158.68	32.71	..	..	94.2	63.4	..	..
Stockholm .. ..	146	18.31	..	..	50.7	27.0	..	..	62.1	25.7
St. Petersburg .. ..	16	21.30	29.52	13.75	61.1	17.4	97.0	-38.2	63.7	15.2
Tokio .. ..	70	59.17	..	..	73.9	38.9	97.9	15.4	77.7	37.1
Vladivostock .. ..	55	19.54	33.60	9.39	63.9	11.0	95.7	-21.8	69.4	6.1
Washington .. ..	75	43.80	61.33	18.79	..	..	..	..	76.8	32.9

# ON THE CLIMATE OF THE YASS-CANBERRA DISTRICT

(WITH CHART),

BY

H. A. HUNT,

COMMONWEALTH METEOROLOGIST.

The Rainfall and Temperature Map comprises the South-eastern area of New South Wales lying approximately to the South of latitude  $34^{\circ} 30' S$  and East of the 148th meridian, E.

It was found necessary to discuss the figures of the whole of this area in order to gauge the variability and distribution of rainfall and temperature over the proposed Federal Capital Territory, since, with the exception of the town of Queanbeyan, meteorological observations have not been taken on the proposed Capital Site itself over a sufficient number of years to enable a proper appreciation of climatic elements to be arrived at.

The isotherms and isohyets are drawn from all available records. Those forming a basis for the rainfall contours are generally sufficiently reliable and numerous to give a correct estimate of the annual distribution, excepting, perhaps, the upper catchment area of the Cotter River.

The Temperature data are, however, very few, and insufficient for an approximately accurate outline of this element for the year, particularly in a region where the physiography is so widely variable. I have therefore had the isotherms computed on the formula that the temperature varies 1 deg. Fah. for each 300 feet elevation, and 1 deg. Fah. for each degree of latitude.

The average rainfall for the proposed Federal Territory is 25.5 inches, or about that of Melbourne or London.

The highest recorded average in the Territory is 32.92 inches at Uriarra; and the lowest, 18.73 inches at Duntroon. Neither of these records can, however, be accepted as accurate, for in the surrounding districts for the majority of the years over which observations have extended, the seasonal rains have been low or normal; these remarks particularly apply to the average of 18.73 at Duntroon, and, further, the figures cover a short period of only thirteen years of dry or moderate seasons.

No official records have been taken on the Cotter catchment area, but it is confidently estimated that the average rainfall there cannot be less than from 40 to 60 inches per annum, because Kiandra, which is only a few miles distant, has an average of 64 inches per annum, and is exposed to the same rain-bearing winds, and has the additional disadvantage of being some 500 to 1,500 feet lower than many of the peaks which serve as condensing or precipitating agents for the Cotter River.

It is reassuring to note, if the records of Kiandra can be accepted as a guide, that the precipitation on these higher levels does not suffer the extreme annual variations to which the lower levels are susceptible, so that the flow of water in the Cotter River may reasonably and justifiably be regarded as both fairly uniform and constant.

At Queanbeyan, which is only 8 miles distant from the Capital site, rain records have been taken from September, 1870, or about 40 years, and, since the elevation above sea level and the surroundings of both places are somewhat similar, the figures from Queanbeyan should be nearer the truth than those obtained at Duntroon. A comparison of the rainfall at both these places for the same set of years confirms this view, for the average only shows a difference of .9 of an inch in favour of Queanbeyan.

Again, Queanbeyan's rainfall for 39 years is 22.63 inches, its average from 1896 to 1908 equals but 19.56, so that if the difference—3.07—is added to the mean derived at Duntroon for the latter period, viz.,  $18.73 + 3.07$ , the average on the city site itself would be 21.80 inches per annum, or slightly above that of Adelaide.

As much as 41.29 inches was registered in the year 1887 at Queanbeyan, and as little as 10.42 in 1902, a range of 30 inches, so that, as in many other parts of our interior, a storage or equalizing provision must be definitely contemplated over the catchment in the lower areas of the Territory.

As before mentioned, the sparse temperature data so far obtained over the area leaves this phase of weather inconclusive, but taking Queanbeyan as representative for the same reasons as those stated in regard to rainfall, we may assume the mean annual temperatures to be  $55^{\circ}$  Fah., the summer mean  $68^{\circ}$ , and the winter  $42^{\circ}$ .

Observations of wind, evaporation and other climatic elements are not available, and any attempt at an estimation of normals other than those of rain and temperature would be the vaguest speculation.

With regard to prevailing winds, in addition to cyclonic and anticyclonic circulations, which largely control the winds in the southern areas of Australia, the influence of valley and mountain effects on air currents is a strong factor that will have to be reckoned with in future studies of the climate of the district, but from the extremes of elevation existing in the Territory, it is obvious that suitable climatic conditions obtain for nearly all economic and hygienic requirements.

The lower levels will be suitable for industries requiring a dry air, while those requiring moister surroundings will find abundant areas in the higher regions.

Sites for sanatoria will be found, approaching, if not equalling, the best in Australia, in the vicinity of the mountains—Bimberi, Tindery, Tidbinbilla, and Corree.

Tables showing particulars of rainfall and temperatures are appended, and a revised comparative statement of the various climatic elements of different cities of the world is also included.

It will be noted that the temperature variations of Canberra compare most favorably with cities of the world situated in similar latitudes, and being some distance from the sea can never be subject to the distressing, enervating, and, at times, deadly effects of a high wet bulb thermometer reading which occasionally afflict many of the world's big cities founded near the oceans.

With regard to rainfall also, it may be mentioned that the annual average of the city site equals or exceeds that recorded at the following places:—Berlin, Budapest, Christians, Copenhagen, Madrid, Marseilles, Moscow, Naples, Paris, San Francisco, Stockholm, St. Petersburg, and Vladivostock.

TABLE SHEWING COMPARISON OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.					
		Average.	Highest.	Lowest.	Mean of 3 Hottest Months.	Mean of 3 Coldest Months.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.
Amsterdam .. .. .	..	26.40	..	..	62.9	37.1	93.9	5.8	63.6	35.0
Auckland .. .. .	..	43.09	54.18	31.89	65.2	52.2	..	..	..	..
Athens .. .. .	..	..	..	..	..	..	106.0	..	..	..
Bergen .. .. .	146	89.10	102.80	73.50	56.8	34.5	88.5	4.8	57.9	33.6
Berlin .. .. .	115	22.88	30.04	14.25	64.7	32.2	98.6	-13.0	66.0	39.0
Berna .. .. .	1,880	46.00	..	..	..	..	97.2	-22.0	63.0	27.0
Bombay .. .. .	37	73.90	..	..	83.0	75.2	98.5	55.9	84.6	74.5
Breslau .. .. .	482	22.00	28.01	16.45	63.4	29.0	100.0	-23.4	..	..
Brussels .. .. .	..	28.66	41.27	17.77	..	..	..	..	..	..
Budapest .. .. .	512	24.80	35.27	12.91	..	..	..	..	..	..
Buenos Ayres .. .. .	72	36.82	80.73	21.53	73.2	51.5	103.1	25.9	74.2	50.5
Calcutta .. .. .	18	63.30	..	..	85.1	66.9	108.2	44.2	85.7	65.2
Cape Town .. .. .	40	25.50	36.72	17.71	68.1	54.7	102.0	34.0	68.8	53.9
Carcnons .. .. .	3,429	30.03	47.36	23.70	68.3	65.3	87.8	48.2	69.2	63.7
Chicago .. .. .	836	33.28	45.80	24.40	70.0	26.1	103.0	23.0	72.4	23.7
Christchurch .. .. .	..	23.24	33.30	13.54	59.7	43.1	..	..	..	..
Christiania .. .. .	82	22.51	..	..	61.0	24.5	93.0	-21.1	62.6	23.9
Colombo .. .. .	42	88.27	..	..	81.4	79.2	100.0	64.0	82.1	79.0
Constantinople .. .. .	..	28.75	42.74	14.78	74.0	43.5	103.6	13.0	75.7	42.0
Copenhagen .. .. .	43	22.06	28.78	14.02	60.5	31.9	90.5	-9.7	61.9	31.4
Dresden .. .. .	115	26.89	34.49	17.72	56.3	8.3	94.6	-8.7	..	..
Dublin .. .. .	47	27.86	35.57	20.47	58.9	42.0	87.2	13.3	63.5	32.8
Durban .. .. .	262	..	..	..	..	..	..	..	..	..
Edinburgh .. .. .	230	26.50	38.94	17.00	59.0	38.4	88.0	0.0	58.0	37.0
Geneva .. .. .	1,328	33.48	46.80	21.14	..	..	..	..	..	..
Genoa .. .. .	157	31.26	108.22	28.21	..	..	..	..	..	..
Glasgow .. .. .	184	38.49	56.18	20.03	52.7	41.0	84.9	6.6	..	..
Greenwich .. .. .	109	24.12	35.54	16.38	61.3	39.3	97.1	4.0	62.7	38.6
Hong Kong .. .. .	110	84.43	119.71	45.83	81.3	69.3	88.8	50.5	81.8	58.0
Johannesburg .. .. .	5,925	30.64	43.39	21.66	65.0	51.5	94.0	23.3	66.8	49.6
Leipzig .. .. .	117	24.60	31.37	17.10	55.4	40.3	96.4	-11.2	..	..
Lisbon .. .. .	312	29.18	52.79	17.32	69.6	51.3	94.1	32.5	..	..
London .. .. .	18	23.13	..	..	..	..	89.4	10.8	..	..
Madras .. .. .	22	49.02	88.06	18.45	87.6	75.9	112.4	57.3	88.7	75.3
Madrid .. .. .	2,149	16.23	27.48	9.13	73.0	41.2	107.1	10.5	75.7	39.7
Marseilles .. .. .	246	21.15	43.04	10.56	70.4	45.4	100.4	11.5	72.2	44.3
Moscow .. .. .	387	21.50	29.58	13.74	63.5	..	..	..	68.0	12.0
Naples .. .. .	489	33.60	50.43	16.02	76.1	49.3	104.0	23.0	77.2	48.2
New York .. .. .	146	44.63	37.60	24.30	71.4	31.8	97.0	-28.0	73.5	30.2
Ottawa .. .. .	294	33.19	38.05	25.25	66.7	15.0	98.3	-31.6	68.7	12.6
Paris .. .. .	165	21.92	29.56	16.44	63.5	37.1	101.1	-14.1	65.8	36.1
Pekin .. .. .	..	24.40	..	..	..	..	..	..	79.2	23.6
Quebec .. .. .	296	..	..	..	63.0	14.0	..	..	66.0	9.4
Rome .. .. .	164	33.58	57.95	29.71	74.0	46.6	100.4	19.6	76.5	45.7
San Francisco .. .. .	189	22.77	38.82	9.31	58.6	50.6	100.0	29.0	61.0	50.0
Shanghai .. .. .	..	..	..	..	77.4	39.4	79.7	37.4	82.7	37.7
Singapore .. .. .	12	92.70	123.24	65.56	..	..	93.0	..	..	..
Stockholm .. .. .	144	17.92	25.46	11.78	59.6	37.1	91.8	-22.0	63.0	24.5
St. Petersburg .. .. .	33	19.87	29.33	12.13	61.0	19.0	87.4	-30.3	64.0	17.1
Tokio .. .. .	69	58.00	..	..	74.1	38.6	98.0	15.0	77.4	36.6
Trieste .. .. .	85	42.94	63.14	26.57	..	..	..	..	..	..
Vienna .. .. .	663	24.50	33.99	16.50	65.7	30.4	97.7	-8.0	67.1	28.0
Vladivostock .. .. .	100	12.60	..	..	..	..	..	..	69.5	5.0
Washington .. .. .	132	43.50	61.30	39.60	74.7	34.5	104.0	-15.0	77.9	33.0
Wellington (N.Z.) .. .. .	..	49.88	60.40	34.93	69.7	48.3	..	..	..	..

The above information has been obtained from the following sources:—

From Climatological Tables, as supplied by Observatories *re circular*—Madras, Paris, Vienna, Breslau, Greenwich, Caracas, Glasgow, Bergen, Leipzig, Dresden, Stockholm.

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Rainfalls for—Lisbon, Madrid, Paris, Edinburgh, Berlin, Geneva, Genoa, Rome, Naples, Trieste, Vienna, Copenhagen, St. Petersburg, Moscow.

Marseilles (Bulletin Annual) 1907 année.

San Francisco Rainfall, U.S. Weather Bureau Monthly for April, 1903 (page 99).

Reduction of Observations, Shang-Hai (No. 216).

Quebec (Height), Canada Report.

Dublin and London (Kew) 2nd Order Stations, 1906 (and 1905 as over).

Madras (part), Bombay, Calcutta, and Colombo, from Indian Meteorological Memoirs, Average 30 years. Calcutta Rainfall (Gilbert's Change of Climate in India).

Die Jährliche periode der Niederschläge in Ungarn—Brussels, Genoa, Mean Rainfall for 50 years, Highest and Lowest Rainfall.

Hong Kong Observations, 1909, Average Rainfall. Temperature from 1908 Observations.

Kew Meteorological Observations at Stations, 2nd Order, 1905, Average Rainfall, Highest and Lowest.

Berlin Temperatures. "Nature," 22nd September, 1910.

TABLE SHOWING COMPARISON OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA—continued.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.						
		Average.	Highest.	Lowest.	Mean of 3 Hottest Months.	Mean of 3 Coldest Months.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.	
FEDERAL CAPITAL SITE.											
Canberra (District) (Queanbeyan)	.. { 2,000 to 2,000 }	22·63	41·29	10·42	67·5	41·8	101·0	11·1	68·4	39·7	
THE STATE CAPITALS.											
Perth .. .. .	197	33·44	46·73	20·48	72·7	55·7	107·9	35·3	73·8	55·0	
Adelaide .. ..	140	29·54	39·67	13·43	73·1	52·9	116·3	32·0	74·2	51·5	
Brisbane .. ..	137	48·06	88·26	16·17	76·6	59·4	108·9	36·1	77·2	58·0	
Sydney .. .. .	145	47·97	82·81	23·01	70·9	53·8	108·5	35·9	71·6	52·2	
Melbourne .. ..	91	25·42	36·42	15·61	66·4	49·9	111·2	27·0	67·4	48·5	
Hobart .. .. .	100	23·36	40·67	13·43	61·3	46·9	105·2	27·7	62·0	45·7	

RAINFALLS OF STATIONS NEAR FEDERAL CAPITAL SITE, NEW SOUTH WALES.

Station.	No. of Years.	Average.	Greatest.	Year.	Lowest.	Year.
Adaminaby .. ..	21	Inches. 28·27	Inches. 42·95	1887	Inches. 15·46	1902
Adelong .. .. .	24	30·03	41·73	1906	16·30	1902
Araluen .. .. .	18	30·83	50·98	1898	17·48	1907
Argalong .. .. .	9	39·54	60·45	1906	24·16	1902
Batlow .. .. .	23	49·82	72·61	1906	26·72	1902
Bega .. .. .	27	31·35	59·78	1891	15·79	1885
Bemboka .. .. .	19	31·35	59·13	1893	16·12	1895
Berebangalo .. ..	18	21·72	34·08	1894	12·79	1895
Bovendale .. .. .	16	20·78	40·49	1894	13·24	1902
Bobandarra .. ..	27	19·52	31·15	1887	10·49	1895
Bodalla .. .. .	34	36·14	62·79	1879	19·50	1885
Boloco .. .. .	22	23·92	38·04	1897	13·43	1895
Bombala .. .. .	25	23·00	38·18	1891	11·88	1885
Bowning .. .. .	18	27·63	46·90	1894	14·71	1902
Braidwood .. .. .	21	24·23	37·98	1892	15·47	1895

## RAINFALLS OF STATIONS NEAR FEDERAL CAPITAL SITE, NEW SOUTH WALES—continued.

Station.	No. of Years.	Average.	Greatest.	Year.	Lowest.	Year.
		Inches.	Inches.		Inches.	
Broadbans	7	22.56	32.56	1900	19.37	1907
Bukalong	53	26.11	50.75	1870	12.25	1865
Bungendore	18	22.41	36.39	1894	11.95	1902
Bungonia	27	25.55	42.80	1891	15.73	1895
Burrows	26	21.74	38.29	1887	11.69	1895
Candelo	22	28.02	56.43	1891	14.01	1904
Carlaminda	19	19.05	33.79	1891	10.59	1895
Carwoola	19	24.07	40.14	1891	14.76	1895
Cathcarr	10	26.30	37.80	1900	19.47	1903
Cavan	27	25.85	50.69	1887	13.80	1902
Chatsbury	19	31.34	52.84	1900	20.43	1902
Collector	17	26.38	41.37	1894	16.79	1902
Coolamatong	24	22.23	35.34	1887	14.58	1904
Cooma	44	18.85	33.35	1891	11.19	1895
Cootamundra	21	23.02	32.28	1891	15.38	1894
Crookwell	26	31.81	46.81	1887	20.84	1897
Cunningham Plains	24	22.86	42.18	1887	12.26	1902
Corrandooley	26	22.24	37.90	1887	12.38	1902
Dalgaty	13	17.25	23.20	1900	13.12	1909
Dalton	11	22.09	32.11	1900	14.88	1902
Douglas	25	25.59	42.37	1887	13.81	1902
Dunroon	13	18.73	28.94	1900	11.69	1902
Elen	38	34.34	67.57	1870	16.63	1888
Fairlight (late Woodstock)	23	28.27	49.76	1887	15.56	1902
Feen Hill	17	33.92	56.88	1894	19.54	1902
Gidloigh	24	24.07	40.33	1891	12.54	1902
Gobarralong	22	22.94	32.19	1894	14.29	1895
Goulburn	46	23.97	49.71	1870	11.71	1865
Gudgenby	19	29.49	45.11	1891	15.71	1895
Gundagai	17	22.89	35.37	1894	16.90	1904
Gundaroo	32	24.06	39.91	1891	11.38	1907
Gunning	24	25.28	46.50	1894	14.19	1902
Harden	23	22.51	30.96	1887	11.50	1902
Hardwick	18	22.03	35.92	1894	13.64	1902
Jervis Bay	43	56.53	107.92	1895	17.53	1888
Jimenbuon	21	22.53	36.24	1891	15.13	1904-1905
Jindabyne West	18	25.82	37.00	1891	16.86	1885
Jugiong	11	19.63	28.55	1900	13.10	1902
Kandra	35	64.04	90.00	1889	42.18	1908
Kimo	28	23.07	38.29	1887	13.99	1902
Kingswood	19	28.28	48.23	1891	16.36	1904
Kippilaw	24	22.83	38.40	1891	14.19	1895
Lake Bathurst	19	24.77	43.14	1891	12.33	1895
Lake George	25	27.00	42.11	1887	15.90	1908
Lambrigg	15	21.07	31.92	1900	13.41	1895
Landgrove	19	23.56	35.61	1894	14.25	1902
Lands End	23	25.32	45.94	1887	12.45	1902
Laurel Hill	20	53.65	83.85	1905	25.81	1902
Majura	24	24.51	41.93	1887	11.64	1902
Michelago	24	20.78	38.10	1887	8.69	1895
Milton	25	44.26	74.90	1890	29.00	1888
Moruya	33	35.27	63.79	1879	19.67	1895
Mount Campbell	18	24.19	36.60	1894	14.39	1902
Murrumbidgee	22	21.09	36.77	1887	13.22	1895
Murrumbidgee	25	23.71	37.88	1887	12.11	1902
Muttama	6	21.14	27.97	1905	12.48	1902
Mylora	15	26.36	42.65	1894	15.95	1902
Nimitybelle	15	24.73	32.14	1899	14.34	1895
Nowra	25	36.75	58.25	1890	19.51	1888
Panpoug	8	24.63	36.37	1899	20.96	1904
Queanbeyan	39	22.63	41.29	1887	10.42	1902
Red Hill Station	23	33.83	49.60	1887	18.24	1903
Rosedale	15	23.29	29.45	1887	14.80	1895
Rosemount	20	31.18	45.74	1894	18.49	1902
Samares	20	25.51	38.62	1891	11.69	1895
Snowball	13	33.22	46.60	1900	24.73	1901
Springvale	19	43.25	62.04	1894	21.84	1902
Sutton	22	24.23	43.62	1887	9.21	1902
Tarago	18	23.36	44.20	1887	15.19	1902
Tooma	25	30.36	43.33	1887	15.10	1902
Tumbarumba	25	39.66	55.95	1900	20.97	1902
Tumut	23	31.60	47.80	1887	16.82	1902
Uriarra	15	22.92	34.11	1887	20.00	1899
Woodhouselee	20	26.09	40.15	1879	16.79	1888
Wyndham	19	34.20	63.93	1891	20.20	1907
Yallowin	24	39.55	61.48	1905	18.52	1902
Yass	30	23.62	43.32	1887	13.39	1902

COMMONWEALTH METEOROLOGY.

ELEMENTS—TEMPERATURE, RAINFALL, EVAPORATION AT STATIONS NEAR FEDERAL CAPITAL SITE.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
<i>Bombala.</i>													
Mean Maximum, 25 years	80.7	78.6	74.0	67.3	59.1	53.2	51.8	55.8	61.8	68.8	74.0	78.2	66.9
Mean Minimum	49.7	48.9	46.8	41.1	35.0	33.2	30.5	33.0	37.3	41.2	45.3	48.5	40.9
Mean Temperature	65.2	63.8	60.4	54.2	47.0	43.2	41.2	44.4	49.5	55.0	59.7	63.3	53.9
Absolute Maximum	104.1	99.7	98.7	91.1	76.1	66.6	70.7	76.1	82.5	86.8	101.6	101.7	104.1
Absolute Minimum	31.2	25.3	30.0	28.0	17.0	16.1	15.5	19.0	22.2	25.0	30.0	30.2	15.5
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 25 years	242	171	201	152	142	276	181	164	162	196	177	236	23.00
<i>Canan.</i>													
Mean Maximum, 27 years	85.3	84.2	78.6	69.9	60.9	54.8	54.3	58.3	64.7	70.9	77.6	83.0	70.2
Mean Minimum	60.9	60.8	55.4	47.7	39.6	36.9	33.5	35.8	39.7	45.1	52.7	57.8	47.2
Mean Temperature	73.1	72.5	67.0	58.8	50.3	45.8	43.9	47.1	52.2	58.0	65.2	70.4	58.7
Absolute Maximum	105.1	107.9	100.1	89.2	81.1	76.1	70.1	82.1	84.1	98.1	98.1	107.1	107.9
Absolute Minimum	39.7	34.0	27.0	23.0	18.7	18.0	18.0	20.0	24.0	27.7	31.7	34.7	18.0
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 29 years	277	164	207	103	103	302	207	216	211	247	169	199	25.85
<i>Cooma.</i>													
Mean Maximum, 44 years	83.8	81.2	77.6	68.4	60.8	53.4	42.9	57.0	63.1	70.2	75.0	81.1	68.0
Mean Minimum	51.5	51.3	47.6	40.8	33.4	30.8	27.4	29.7	34.4	39.1	44.9	48.5	39.9
Mean Temperature	67.7	66.2	62.6	54.6	47.1	42.1	35.2	43.3	48.8	54.6	60.5	64.8	54.0
Absolute Maximum	112.0	107.0	104.6	92.7	77.7	69.2	72.9	75.7	86.9	95.7	102.1	110.0	112.0
Absolute Minimum	29.8	33.4	28.2	22.8	16.6	13.4	11.0	12.7	14.3	24.0	25.8	28.8	11.0
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 44 years	202	228	174	131	126	145	91	92	161	179	193	161	18.83
<i>Cooramundra.</i>													
Mean Maximum, 16 years	88.5	86.5	79.3	71.1	61.0	54.5	52.0	56.1	62.9	69.6	78.6	86.7	70.6
Mean Minimum	64.0	61.5	56.0	47.3	39.6	38.8	35.2	36.4	39.7	45.8	52.8	59.2	48.0
Mean Temperature	76.3	74.0	67.6	59.2	50.3	46.7	43.6	46.2	51.3	57.7	65.7	73.0	59.3
Absolute Maximum	111.0	107.5	98.5	87.4	76.0	72.0	70.5	71.0	85.4	96.5	96.0	112.0	112.0
Absolute Minimum	42.0	43.9	37.1	30.9	25.9	19.9	20.9	20.9	21.9	28.9	28.9	30.9	19.0
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 25 years	236	135	175	103	160	268	201	202	184	218	146	179	23.02
<i>Douglas, Lake George.</i>													
Mean Maximum, 19 years	83.3	81.9	77.2	68.9	61.2	54.9	54.4	57.3	64.0	70.1	76.6	82.0	69.3
Mean Minimum	59.0	57.6	53.6	46.7	39.1	36.7	34.4	36.0	40.9	46.3	52.8	58.0	46.8
Mean Temperature	71.2	69.7	65.4	57.8	50.2	45.8	44.4	46.9	52.5	58.2	64.7	70.0	58.1
Absolute Maximum	107.0	103.0	101.0	86.0	81.0	79.0	76.0	79.0	82.0	90.0	98.0	108.0	108.0
Absolute Minimum	41.8	39.8	36.8	32.8	23.8	18.8	21.8	23.8	26.8	29.8	34.8	41.8	18.8
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 24 years	289	174	188	184	179	278	189	226	207	235	192	218	25.59
Mean Evaporation, 8 years	3.305	2.603	2.571	1.776	1.184	1.038	0.899	1.011	1.328	1.582	2.261	2.486	22.044
<i>Goulburn.</i>													
Mean Maximum, 46 years	83.6	80.2	76.8	69.0	59.8	53.4	52.2	56.1	62.1	69.7	75.6	81.0	68.3
Mean Minimum	55.0	54.4	51.2	44.1	37.7	35.4	32.9	34.5	38.6	43.4	47.8	51.0	43.9
Mean Temperature	69.3	67.3	64.0	56.6	48.7	44.4	42.6	45.3	50.3	56.6	61.7	66.0	56.1
Absolute Maximum	109.0	111.0	101.0	93.0	78.0	72.5	75.1	77.0	84.0	97.5	100.5	107.5	111.0
Absolute Minimum	33.0	35.0	31.6	24.4	19.0	18.4	18.6	13.0	21.6	26.0	28.0	31.0	13.0
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 46 years	275	255	205	170	189	203	156	188	205	231	213	217	25.07
<i>Murrumburrah.</i>													
Mean Maximum, 24 years	90.2	88.4	83.3	74.8	66.4	59.1	58.6	61.1	66.5	74.3	81.9	87.6	74.4
Mean Minimum	60.7	59.7	54.8	47.1	39.8	37.1	35.3	36.0	39.3	45.0	51.5	57.5	48.9
Mean Temperature	75.5	74.0	69.1	60.9	52.6	48.1	47.0	48.5	52.9	59.7	66.7	72.5	60.6
Absolute Maximum	114.9	108.1	100.1	96.4	92.4	87.1	82.1	82.1	85.1	96.0	101.9	112.9	114.9
Absolute Minimum	38.4	38.0	33.0	30.0	24.0	19.0	21.0	20.0	21.0	28.0	28.0	34.0	19.0
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 25 years	234	137	207	221	164	260	209	220	204	196	151	179	23.91
<i>Queanbeyan.</i>													
Mean Maximum, 13 years	82.0	81.4	75.1	67.0	58.1	51.6	49.6	53.7	60.5	68.8	75.5	80.9	67.0
Mean Minimum	54.8	54.3	50.4	43.8	36.6	33.6	29.9	32.6	35.7	40.8	47.0	51.3	42.6
Mean Temperature	68.4	67.9	62.7	55.4	47.4	42.6	39.7	43.2	48.1	54.8	61.2	66.1	54.8
Absolute Maximum	104.0	102.0	90.0	85.0	69.7	64.0	61.5	67.0	79.0	87.0	92.0	101.0	104.0
Absolute Minimum	33.0	36.0	29.8	26.0	18.0	15.0	11.1	13.0	18.8	19.0	24.0	27.0	11.1
	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	pts.	inches
Mean Rainfall, 39 years	236	153	190	169	170	196	131	158	176	233	216	205	22.63

## COMMONWEALTH METEOROLOGY—continued.

Year.	Jan- ary.	Feb- ruary.	March.	April.	May.	June.	July.	August.	Sep- tember.	Octo- ber.	No- vember.	De- cember.	Year.	
<i>Queanbeyan (Stevenson's Screen).</i>														
1909.	..	..	..	..	..	..	..	..	..	..	..	..	..	
Mean Maximum	..	..	76.1	58.3	52.5	..	46.0	53.7	60.6	71.3	77.8	79.9	..	
Mean Minimum	..	..	50.1	40.4	30.5	37.8	30.7	35.8	37.2	42.2	45.5	52.6	..	
Mean Temperature	..	..	63.1	49.4	44.5	..	38.4	44.7	48.9	56.8	61.7	66.3	..	
<i>Yass.</i>														
Mean Maximum, 26 years	85.4	83.4	77.8	69.0	59.9	52.5	51.3	55.3	61.5	68.6	77.8	83.4	68.8	
Mean Minimum	..	60.1	59.0	55.3	47.2	40.0	38.7	36.3	37.7	41.4	46.4	52.6	47.7	
Mean Temperature	..	72.8	71.2	66.6	58.1	49.9	45.6	43.8	46.5	51.5	57.5	65.2	58.3	
Absolute Maximum	..	107.5	105.0	98.0	90.5	74.5	66.5	63.0	75.0	82.5	93.0	103.0	108.5	
Absolute Minimum	..	41.5	42.5	36.5	28.0	21.5	19.0	22.0	23.0	22.5	28.5	33.0	19.0	
Mean Rainfall, 30 years	..	pts. 241	pts. 133	pts. 182	pts. 179	pts. 172	pts. 270	pts. 191	pts. 211	pts. 200	pts. 226	pts. 174	pts. 183	inches 23.62
<i>Laverstock, near Yass (Stevenson's Screen).</i>														
Mean Maximum, 6 years	..	85.8	83.8	77.8	71.7	62.7	54.9	52.4	55.0	58.8	66.9	75.5	82.4	69.0
Mean Minimum	..	60.1	57.7	52.2	47.6	41.2	34.0	35.4	35.3	38.7	43.9	49.4	54.1	45.8
Mean Temperature	..	73.0	70.7	65.0	59.7	51.9	44.5	43.9	45.1	48.8	55.4	62.4	68.3	57.4
Absolute Maximum	..	105.5	102.0	93.0	89.0	81.0	75.0	73.0	73.0	73.0	88.0	95.0	100.0	106.0
Absolute Minimum	..	41.0	42.0	39.0	34.0	26.0	22.0	24.0	26.0	26.0	31.0	33.0	40.0	22.0
<i>Yass (Stevenson's Screen)—Results of Observations for the Year 1909.</i>														
Mean Maximum	..	80.6	78.4	75.8	66.0	57.8	52.8	49.2	54.3	61.9	70.0	78.8	78.9	67.0
Mean Minimum	..	55.5	53.6	52.3	41.2	37.8	39.5	32.0	35.6	36.6	41.3	44.4	49.9	43.3
Mean Temperature	..	68.1	66.0	64.0	53.0	47.8	46.2	40.6	44.9	48.8	55.7	61.6	64.4	55.2
Maximum	..	105.0	96.0	84.5	82.5	67.5	59.0	58.0	65.0	70.0	83.0	93.0	100.0	105.0
Minimum	..	42.0	43.0	43.5	26.0	29.0	29.0	25.5	27.0	27.0	30.0	32.0	38.0	25.5
<i>Federal City (Stevenson's Screen).</i>														
1909	..	..	..	..	..	..	..	..	..	..	67.7	76.1	76.7	..
Mean Maximum	..	..	..	..	..	..	..	..	..	..	44.1	46.9	50.2	..
Mean Minimum	..	..	..	..	..	..	..	..	..	..	55.9	61.5	63.5	..
Mean Temperature	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1910.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mean Maximum	..	77.5	83.6	72.5	68.9	60.1	..	..	..	..	..	..	..	..
Mean Minimum	..	55.8	53.2	53.7	43.8	37.4	..	..	..	..	..	..	..	..
Mean Temperature	..	66.6	68.4	63.1	56.4	48.7	..	..	..	..	..	..	..	..



18. Climatological Tables.—The averages and extremes for a number of climatological elements have been determined from long series of observations at the Australian capitals up to and including the year 1942 (Canberra to 1944). These are given in the following tables:—

CLIMATOLOGICAL DATA : CANBERRA, AUSTRALIAN CAPITAL TERRITORY.

LAT. 35° 18' S., LONG. 149° 06' E. HEIGHT ABOVE M.S.L. 1,906 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mr. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Anemometer 20 feet above surface.				Prevailing Direction.		Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds 9 a.m., 3 p.m. and 9 p.m.	No. of Clear Days.
		Mean Speed (miles per hour).	Highest Mean Speed In One Day (miles per hour).	Max. Gust Speed (miles per hour).	Direction.						
					9 a.m.	3 p.m.					
No. of years observations.	14	16	16	(a)	17	17	16	7	14	15	
January	29.826	5.4	14.9 23/33	—	NW	NW	8.013	0.7	5.0	6.4	
February	29.897	4.8	15.3 24/33	—	E & NNW	NW	7.185	2.7	4.6	6.8	
March	30.016	4.3	18.2 28/42	—	SE	NW	5.819	0.0	5.1	6.5	
April	30.059	4.1	13.6 29/29	—	SE & NW	NW	3.499	0.4	5.6	4.3	
May	30.165	3.3	12.6 31/30	—	SE & NW	NW	2.051	0.2	5.5	5.6	
June	30.146	3.8	16.1 21/30	—	NW	NW	1.274	0.0	6.1	4.2	
July	30.128	3.7	23.4 7/31	—	NW	NW	1.330	0.0	5.7	4.9	
August	30.073	4.5	15.7 25/36	—	NW	NW	1.867	0.0	5.5	5.0	
September	30.041	5.0	17.4 28/34	—	NW	NW	3.086	0.6	5.2	5.9	
October	29.976	4.7	12.4 27/40	—	NW	NW	4.792	0.7	5.2	5.9	
November	29.908	5.2	17.2 28/42	—	NW	NW	6.302	1.0	5.5	4.6	
December	29.835	5.4	16.1 11/38	—	NW	NW	8.047	1.0	5.3	5.2	
Year { Totals	—	—	—	—	—	—	54.165	7.3	—	65.3	
Year { Averages	30.006	4.5	—	—	NW	NW	—	—	5.4	—	
Year { Extremes	—	—	23.4 7/31	—	—	—	—	—	—	—	

(a) No record.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).			Extreme Temperature (Fahr.).		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.	Extreme Range.	Highest in Sun.	Lowest on Grass.	
							(a)	15	
No. of yrs. over which observations extend.	17	17	17	17	17	17	(a)	19	
January	82.6	56.2	69.4	107.4 11/39	39.5 8/38	67.9	—	32.4 (b)	251.0
February	81.7	55.8	68.7	99.8 13/33	35.0 (c)	64.8	—	26.5 23/43	213.2
March	76.6	52.7	64.7	99.1 6/38	36.5 21/32	62.6	—	26.4 26/35	225.3
April	66.5	45.2	55.8	89.7 6/38	29.0 29/34	60.7	—	19.0 18/44	198.7
May	59.5	38.8	49.2	72.6 1/36	22.5 9/29	50.1	—	15.6 13/37	162.5
June	52.4	34.6	43.5	61.0 (d)	18.1 20/35	42.9	—	8.9 25/44	129.7
July	51.8	33.4	42.6	63.5 16/34	20.0 (e)	43.5	—	10.8 9/37	148.5
August	55.2	35.5	45.4	70.5 28/34	21.0 3/29	49.5	—	10.1 6/44	179.0
September	61.2	38.9	50.0	81.5 16/34	25.3 10/44	56.2	—	13.3 17/44	214.7
October	67.9	44.1	56.0	88.0 (f)	29.0 24/28	59.0	—	20.3 2/41	241.2
November	74.0	49.3	61.6	101.4 19/44	32.2 11/36	69.2	—	25.9 6/40	238.2
December	79.6	53.5	66.5	103.5 27/38	36.0 24/29	67.5	—	30.2 2/39	251.3
Year { Averages	67.4	44.8	56.1	—	—	—	—	—	2,453.3(g)
Year { Extremes	—	—	—	107.4 11/11/39	18.1 20/6/35	89.3	—	8.9 25/6/44	—

(a) No record.

(b) 8/38 and 18/43.

(c) 22/31 and 23/31.

(d) 3/27, 28/30 and 30/30.

(e) 19/29, 9/37 and 27/43.

(f) 8/38 and 18/43.

(g) Total for year.

HUMIDITY, RAINFALL AND FOG.

Month.	Vapour Pressure (inches).	Rel. Hum. (%) at 9 a.m.			Rainfall (inches).				Fog. Mean No. of Days Fog.		
		Mean 9 a.m.	Mean.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.		Least Monthly.	
											Greatest in One Day.
No. of yrs. over which observations extend.	16	16	16	16	17	17	17	17	13		
January	0.382	53	69	39	2.05	7	6.69 1941	0.02	1932	2.03 20/37	0.0
February	0.384	55	65	40	1.78	6	4.93 1928	0.01	1933	3.24 17/28	0.0
March	0.387	65	76	48	1.89	7	5.22 1932	0.01	1940	1.82 15/32	0.3
April	0.323	71	81	54	2.14	7	3.75 1935	0.07	1942	1.76 7/40	0.6
May	0.258	79	87	67	1.57	7	5.53 1931	0.06	1935	2.20 26/42	4.3
June	0.214	82	90	74	1.69	8	6.09 1931	0.18	1944	1.65 24/31	5.3
July	0.203	81	87	73	1.59	9	4.09 1933	0.27	1940	2.02 13/33	5.0
August	0.218	76	88	70	1.99	11	4.71 1939	0.36	1944	2.07 12/29	1.8
September	0.242	65	72	57	1.54	9	3.03 1937	0.36	1928	1.15 2/37	0.5
October	0.284	60	72	46	2.33	9	6.59 1934	0.34	1940	2.51 25/34	0.2
November	0.314	54	67	38	1.82	8	4.01 1934	0.28	1936	1.76 7/27	0.0
December	0.345	51	67	37	1.75	8	4.05 1936	0.16	1938	2.29 28/29	0.0
Year { Totals	—	—	—	—	22.14	96	—	—	—	—	18.5
Year { Averages	0.286	66	—	—	—	—	—	—	—	—	—
Year { Extremes	—	—	90	37	—	—	6.69 1/1941	0.01 (a)	3.24 17/2/28	—	—

(a) 2/1933 and 3/1940.

Stations	Min	CDO average	2004-2013	Max	CDO average	2004-2013	Years open 1908	CDO station #	CDO open since
Hunt <1908	4.8	5.8	5.2	19.4	18.4	19.3	25 years	70005	1912
Bombala	4.9	4.9	5.2	19.4	18.4	19.3	25 years	70005	1912
Cavan	8.4	5.9	5.9	21.2	22.3	22.3	27 years	70358	2012
Cooma	4.4	4.0	4.1	20.0	19.4	19.6	44 years	70278	1973
Cootamundra	8.9	7.6	7.7	21.4	22.3	22.5	16 years	73142	1995
Lake George /Canberra AP	8.2	6.6	6.6	20.7	20.8	20.8	19 years	70351	2009
Moolumburra	6.6	7.5	7.9	20.2	19.7	19.8	46 years	70263	1971
Murrumbidgee	8.3	7.6	7.7	23.6	22.3	22.5	24 years	73142	1996
Queanbeyan/Canberra AP	5.9	6.6	6.6	19.4	20.8	20.8	13 years	70351	2009
Yass	8.7	5.9	5.9	20.4	22.3	22.3	26 years	70358	2012
Laverstock	7.7	5.9	5.9	20.6	22.3	22.3	6 years	70358	2012
10 station averages	7.2	6.2	6.4	20.7	21.1	21.2			
Yass > Burrinjuck Dam	8.7	9.2	9.9	20.4	20.6	22.2	26 years	73007	1912
Yass > Linton Hostel	8.7	7.2	7.7 (2001-2010)	20.4	20.7	21.4 (2001-2010)	26 years	70091	1907-2010
Yass Stevenson 1909	6.3	5.9	5.9	19.4	22.3	22.3	1 year	70358	2012
10 station Hunt average	13.9								
10 station CDO average	13.7								
10 station CDO 2004-2013	13.8								

Below are all 18 current stations listed by the BoM as being in the Canberra area - <http://www.bom.gov.au/act/observations/canberramap.shtml>

	Min	CDO average	Max	CDO average	CDO station #	CDO open since
Yass	5.9	5.9	22.3	22.3	70358	2012
Goulburn AP	6.0	6.2	19.6	20.0	70330	1992
Nowra	11.4	11.4	22.2	22.3	68072	2001
Tuggeranong	6.9	7.0	20.8	20.9	70339	1997
Braidwood	6.0	6.0	19.2	19.5	69132	1992
Ulladulla	13.1	13.3	20.6	20.5	69138	1992
Canberra AP	6.6	6.6	20.8	20.8	70351	2009
Mt Ginini	3.4	3.4	11.7	11.7	70349	2005
Batemans Bay	10.0	9.8	21.7	21.7	69134	1992
Cabramurra	5.0	5.1	12.5	12.6	72161	1997
Moruya AP	9.9	10.0	21.3	21.3	69148	2000
Cooma	4.0	4.1	19.4	19.6	70278	1974
Cooma AP	3.9	4.1	18.1	18.2	70217	1992
Narooma	11.9	12.3	20.0	20.2	69022	1965
Montague Island	13.9	14.2	19.4	19.5	69017	1969
Perisher Valley	1.2	1.2	10.8	10.8	71075	2011
Charlotte Pass	-0.5	-0.2	9.9	10.6	71003	1931
Thredbo	0.8	1.1	8.2	8.5	71032	1967
18 station averages	6.6	6.8	17.7	17.8		
10 station Hunt average	13.9					
18 station CDO average	12.1					
18 station CDO 2004-2013	12.3					

Below are all 15 current stations in the Canberra area at about the same latitude or north of Cooma AP

	Min	CDO average	Max	CDO average	CDO station #	CDO open since
Yass	5.9	5.9	22.3	22.3	70358	2012
Goulburn AP	6.0	6.2	19.6	20.0	70330	1992
Nowra	11.4	11.4	22.2	22.3	68072	2001
Tuggeranong	6.9	7.0	20.8	20.9	70339	1997
Braidwood	6.0	6.0	19.2	19.5	69132	1992
Ulladulla	13.1	13.3	20.6	20.5	69138	1992
Canberra AP	6.6	6.6	20.8	20.8	70351	2009
Mt Ginini	3.4	3.4	11.7	11.7	70349	2005
Batemans Bay	10.0	9.8	21.7	21.7	69134	1992
Cabramurra	5.0	5.1	12.5	12.6	72161	1997
Moruya AP	9.9	10.0	21.3	21.3	69148	2000
Cooma	4.0	4.1	19.4	19.6	70278	1974
Cooma AP	3.9	4.1	18.1	18.2	70217	1992
Narooma	11.9	12.3	20.0	20.2	69022	1965
Montague Island	13.9	14.2	19.4	19.5	69017	1969
Averages	7.9	8.0	19.3	19.4		
10 station Hunt average	13.9					
15 station CDO average	13.6					
15 station CDO 2004-2013	13.7					
	Min	Max	Mean	Latitude	Longitude	Altitude
Queanbeyan <1908	5.9	19.4	12.7	35° 10' S	149° 37' E	?
Canberra Year Book <1944	7.1	19.7	13.4	35° 18' S	149° 06' E	580m
Canberra 70014 1939-2010	6.5	19.7	13.1	35° 30' S	149° 20' S	578m
Canberra 70351 2009-2014	6.6	20.8	13.7	35° 31' S	149° 20' S	577m