

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

CARNARVON AT (AUSTRALIA)

Altitude: 4 m.

Latitude: 24°53'S Longitude: 113°40'E

Temperature observation period.: 1950-1994 (45)

Rainfall observation period....: 1937-1994 (58)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	26.67	31.11	22.22	47.78	14.44	10.2	160.13
Feb.	26.67	31.11	22.22	45.56	16.11	17.8	138.23
Mar.	26.39	31.11	21.67	45.00	13.89	17.8	140.84
Apr.	23.89	28.89	18.89	41.11	8.33	15.2	100.32
May.	20.00	25.56	14.44	37.78	6.11	38.1	62.90
Jun.	17.50	22.78	12.22	32.22	3.33	61.0	42.13
Jul.	16.12	21.67	10.56	30.56	2.78	40.6	36.23
Aug.	17.23	22.78	11.67	32.22	3.33	17.8	45.58
Sep.	18.89	23.89	13.89	36.67	5.56	5.1	57.99
Oct.	20.84	25.56	16.11	40.56	7.78	2.5	81.61
Nov.	22.78	27.22	18.33	42.78	10.00	0.8	102.95
Dec.	25.00	29.44	20.56	44.44	12.78	5.1	138.19
Year	21.83	26.76	16.90	39.72	8.70	232	1107.1

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	541
Compensated thermicity index.....(Itc):	541
Simple continentality index.....(Ic):	10.5
Diurnality index.....(Id):	11.1
Annual ombrothermic index.....(Io):	0.89
Monthly estival ombrothermic index.....(Ios1):	0.20
Bimonthly estival ombrothermic index.....(Ios2):	0.52
Threemonthly estival ombrothermic index.....(Ios3):	0.42
Fourmonthly estival ombrothermic index.....(Ios4):	0.34
Annual ombro-evaporation index.....(Ioe):	0.21
Annual positive temperature.....(Tp):	2620
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	783
Positive precipitation.....(Pp):	232

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	0	2	2	8	0

Latitudinal Belt...: Subtropical

Continentality.....: Hyperoceanic - Low Subhyperoceanic

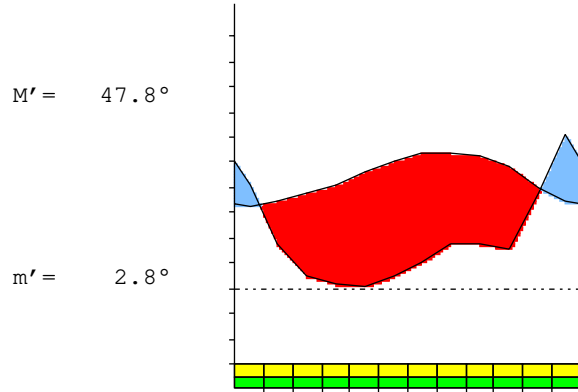
Bioclimate.....: MEDITERRANEAN DESERTIC-OCEANIC

Bioclimatic Belt...: LOW INFRAMEDITERRANEAN UPPER ARID

CARNARVON AT (AUSTRALIA)

4 m

P= 232 24° 53'S 113° 40'E 45/58 y.  
 T= 21.8 ° Ic= 10.5 Tp= 2620 Tn= 0  
 m= 10.6 ° M= 21.7 ° Itc= 541 Io= 0.9



MEDITERRANEAN DESERTIC-OCEANIC  
 LOW INFRAMEDITERRANEAN UPPER ARID

WATER INDEX CARD CARNARVON AT (AUSTRALIA)  
 Altitude: 4 m. Latitude: 24° 53'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	16.1	36	41	4	23	36	0	0	0	0.1
Aug.	17.2	46	18	-23	0	41	5	0	0	-0.6
Sep.	18.9	58	5	0	0	5	53	0	0	-0.9
Oct.	20.8	82	3	0	0	3	79	0	0	-0.9
Nov.	22.8	103	1	0	0	1	102	0	0	-0.9
Dec.	25.0	138	5	0	0	5	133	0	0	-0.9
Jan.	26.7	160	10	0	0	10	150	0	0	-0.9
Feb.	26.7	138	18	0	0	18	120	0	0	-0.8
Mar.	26.4	141	18	0	0	18	123	0	0	-0.8
Apr.	23.9	100	15	0	0	15	85	0	0	-0.8
May.	20.0	63	38	0	0	38	25	0	0	-0.3
Jun.	17.5	42	61	19	19	42	0	0	0	0.4
Year	21.8	1107	232	*	*	232	875	0	0	*

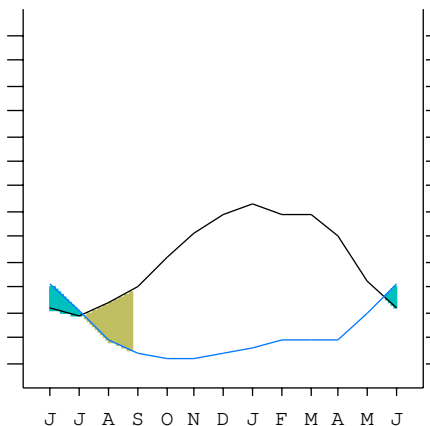
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CARNARVON AT (AUSTRALIA)

24°53'S 113°40'E 4 m 45/58 y.

T= 21.8 Ic= 10.5 MEDITERRANEAN DESERTIC-OCEANIC  
 m= 10.6 Tp= 2620 LOW INFRAMEDITERRANEAN  
 M= 21.7 Tn= 0 UPPER ARID  
 M' = 47.8 Itc= 541  
 m' = 2.8 Io= 0.9  
 P= 232 mm  
 PE= 1107 mm

Imbibing	18 May.
Saturation	5 Jul.
Reserve Use	26 Aug.
Deficit	



CARNARVON AT (AUSTRALIA)

Latitude: 24°53'S Longitude: 113°40'E Altitude: 4 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [A3b]  
 + Type .....: A. Hyperoceanic  
 + Subtype .....: 3. Subhyperoceanic  
 + Variant .....: b. Low  
 Thermic types [A3.A2]  
 + Latitudinal zone ....: A. Warm  
 + Latitudinal belt ....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm  
 Bioclimatic types [B4.1b.3a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 4. DESERTIC-OCEANIC  
 + Bioclimatic variant .:  
 + Thermic type.....: 1. INFRAMEDITERRANEAN  
 + Thermic subtype.....: b. LOW  
 + Ombrothermic type ...: 3. ARID  
 + Ombrothermic subtype : a. UPPER  
 Bioclimatic Classification .....Medo.Ime.Ari.Sho

CARNARVON AT (AUSTRALIA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 67  
 Coldest semester of the year.....(Psw): 165  
 Warmest four months period of the year.....(Pcm1): 51  
 Following warmest four months period.....(Pcm2): 155  
 Positive precipitation dryest 3 months.....(Ppd): 8  
 Positive precipitation dryest 2 months.....(Ppd2): 3  
 Positive precipitation dryest 1 month.....(Ppd1): 1  
 Positive precipitation warmest 3 months.....(Pps): 46  
 Positive precipitation warmest 2 months.....(Pps2): 28  
 Positive precipitation warmest 1 month.....(Pps1): 10  
 Positive precipitation coldest 3 months.....(Ppw): 119  
 Positive precipitation coldest 2 months.....(Ppw2): 58  
 Positive precipitation coldest 1 month.....(Ppw1): 41

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	119	8	33	71

Seasonal rainfall rhythms: W > F > S > P

CARNARVON AT (AUSTRALIA)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.7  
 Average coldest month [T].....(Tmin): 16.1  
 Maximum temp. warmest month [M].....(Tmmax): 31.1  
 Minimum temp. coldest month [m].....(Tmmin): 10.6  
 Absolute Max.temp. warmest month [M'].....(Tamax): 47.8  
 Absolute Min.temp. coldest month [m'].....(Tamin): 2.8  
 First warmest contrasted month [M].....(Tcmax): 25.6 (5)  
 First coldest contrasted month [m].....(Tcmin): 14.4 (5)  
 Estival temperature.....(Ts): 783  
 Positive temperature dryest 3 months.....(Tpd): 625  
 Positive temperature dryest 2 months.....(Tpd2): 436  
 Positive temperature dryest 1 month.....(Tpd1): 228  
 Positive temperature warmest 3 months.....(Tps): 797  
 Positive temperature warmest 2 months.....(Tps2): 533  
 Positive temperature warmest 1 month.....(Tps1): 267  
 Positive temperature coldest 3 months.....(Tpw): 509  
 Positive temperature coldest 2 months.....(Tpw2): 334  
 Positive temperature coldest 1 month.....(Tpw1): 161

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SEASONAL PARAMETERS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Warmest semester...(Sms)	o	o	o	o							o	o
Dryest semester....(Smd)	o							o	o	o	o	o
Warmest 4 months...(Cm1)	o	o	o									o
Dryest 4 months....(Cmd)									o	o	o	o
Vegetation Activity(Pav)	o	o	o	o	o	o	o	o	o	o	o	o
Ultragelid...[M'<=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)												
Pregelid.....[m'<=0] (Pf)												
Agelid.....[m'> 0] (Pf)	o	o	o	o	o	o	o	o	o	o	o	o
HiperAgelid..[all>0] (Pf)	o	o	o	o	o	o	o	o	o	o	o	o

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 4.77  
 Mediterranean index of January.....(Im1): 15.70  
 Mediterranean index of January & February....(Im2): 10.66  
 Mediterranean index of December to February...(Im3): 13.19

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	51	102	178	178	152	381	610	406	178	51	25	8
Tp	250	267	267	264	239	200	175	161	172	189	208	228
Io (Iom)	0.20	0.38	0.67	0.67	0.64	1.91	3.49	2.52	1.03	0.27	0.12	0.04
Seasons	Summer			Autumn			Winter		Spring			
Pp(x10)/Tp	331 / 783			711 / 703			1194 / 509		84 / 625			
Io (Iot)	0.423			1.012			2.348		0.134			
Semesters	December-May						June-November					
Pp(x10)/Tp	1042 / 1486						1278 / 1134					
Io (Iosm)	0.701						1.127					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 2320/2620=0.89 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	51	102	178	178	152	381	610	406	178	51	25	8
Tp [T*10]	250	267	267	264	239	200	175	161	172	189	208	228
Iom [Pp/Tp]	20	38	67	67	64	191	349	252	103	27	12	4
Avm [200-Iom]	180	162	133	133	136	10	***	***	97	173	188	196
Seasons	Summer			Autumn			Winter		Spring			
Pp / Tp	331 / 783			711 / 703			1194 / 509		84 / 625			
Iot [Pp/Tp]	42			101			235		13			
Avs E[Avm<200]	475			278			***		557			
Lower ultrahyperarid [1]						Upper ultrahyperarid [2]						
Lower hyperarid [2]						Upper hyperarid [1]						
Strong lower arid [1]						Weak lower arid [3]						
Strong lower semiarid [2]						Weak upper semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 10.55  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 22.22  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 17.36  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.14  
 + Subcontinental (1.1<CI<1.7)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 10.63  
 + Steppic (40>R>0)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 7.29  
 + Arid -steppic- (15>Ia>5)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 27.09  
 + Arid (30>Q>0)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 9.41  
 + Extremely arid (DR>6)  
 Aridity Index of UNEP [I=P/PE] .....: 0.21  
 + Semiarid (0.5>Im>0.2)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 16.04  
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....:  
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.03	0.05	0.05	0.05	0.14	0.26	0.17	0.07	0.02	0.01	0.00	0.01
T-E ratio	12.00	12.00	11.88	10.75	9.00	7.88	7.25	7.75	8.50	9.38	10.25	11.25
Precipitation-effectiveness: 8.53						Temperature-efficiency .....: 117.89						
Moisture Index [MI=100*(P-PE)/PE] .....: -79.04 + E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE] .....: 79.04 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....: 0.00 + No surplus (0<HI<10)												
Potential Evapotranspiration PE .....: 1107.09 + Forth mesothermic (997<PE<1440)												

