

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

BROKEN HILL (AUSTRALIA)

Altitude: 288 m.

Latitude: 32°0'S Longitude: 141°28'E

Temperature observation period.: 1958-1994 (37)

Rainfall observation period....: 1952-1994 (43)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	25.28	32.78	17.78	46.11	7.22	17.3	148.75
Feb.	25.83	33.33	18.33	46.67	5.56	22.4	133.28
Mar.	22.22	29.44	15.00	45.56	4.44	16.0	101.56
Apr.	18.06	24.44	11.67	37.78	1.11	16.0	60.98
May.	13.89	19.44	8.33	31.11	-0.56	24.6	35.18
Jun.	10.84	15.56	6.11	26.11	-2.78	30.2	20.11
Jul.	10.00	15.00	5.00	26.67	-1.67	17.8	18.23
Aug.	11.67	17.22	6.11	28.89	-1.67	21.3	26.23
Sep.	15.00	21.11	8.89	34.44	0.56	19.1	44.85
Oct.	18.61	25.56	11.67	40.00	2.22	20.3	76.19
Nov.	22.22	29.44	15.00	43.89	5.00	17.0	110.18
Dec.	24.72	32.22	17.22	45.56	5.56	21.3	143.63
Year	18.19	24.63	11.76	37.73	2.08	243	919.18

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	382
Compensated thermicity index.....(Itc):	382
Simple continentality index.....(Ic):	15.8
Diurnality index.....(Id):	15.0
Annual ombrothermic index.....(Io):	1.11
Monthly estival ombrothermic index.....(Ios1):	0.68
Bimonthly estival ombrothermic index.....(Ios2):	0.78
Threemonthly estival ombrothermic index.....(Ios3):	0.80
Fourmonthly estival ombrothermic index.....(Ios4):	0.80
Annual ombro-evaporation index.....(Ioe):	0.89
Annual positive temperature.....(Tp):	2183
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	758
Positive precipitation.....(Pp):	243

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	1	5	6	0

Latitudinal Belt...: Subtropical

Continentalty.....: Oceanic - Low Euoceanic

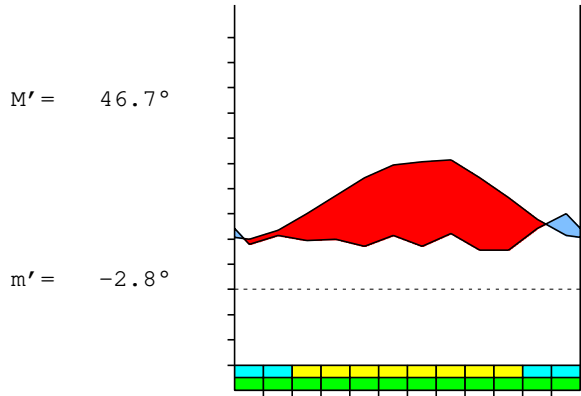
Bioclimate.....: MEDITERRANEAN XERIC-OCEANIC

Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN LOW SEMIARID

BROKEN HILL (AUSTRALIA)

288 m

P= 243 32° 0'S 141° 28'E 37/43 y.  
 T= 18.2° Ic= 15.8 Tp= 2183 Tn= 0  
 m= 5.0° M= 15.0° Itc= 382 Io= 1.1



MEDITERRANEAN XERIC-OCEANIC  
 UPPER THERMOMEDITERRANEAN LOW SEMIARID

WATER INDEX CARD BROKEN HILL (AUSTRALIA)  
 Altitude: 288 m. Latitude: 32° 0'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	10.0	18	18	-0	10	18	0	0	0	0.0
Aug.	11.7	26	21	-5	5	26	0	0	0	-0.1
Sep.	15.0	45	19	-5	0	24	21	0	0	-0.5
Oct.	18.6	76	20	0	0	20	56	0	0	-0.7
Nov.	22.2	110	17	0	0	17	93	0	0	-0.8
Dec.	24.7	144	21	0	0	21	122	0	0	-0.8
Jan.	25.3	149	17	0	0	17	131	0	0	-0.8
Feb.	25.8	133	22	0	0	22	111	0	0	-0.8
Mar.	22.2	102	16	0	0	16	86	0	0	-0.8
Apr.	18.1	61	16	0	0	16	45	0	0	-0.7
May.	13.9	35	25	0	0	25	11	0	0	-0.3
Jun.	10.8	20	30	10	10	20	0	0	0	0.5
Year	18.2	919	243	*	*	243	676	0	0	*

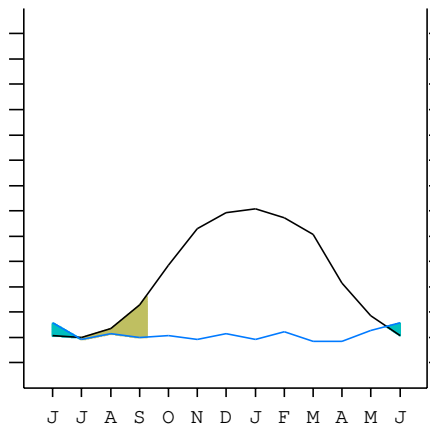
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

BROKEN HILL (AUSTRALIA)

32°0'S 141°28'E 288 m 37/43 y.

T= 18.2 Ic= 15.8 MEDITERRANEAN XERIC-OCEANIC  
 m= 5.0 Tp= 2183 UPPER THERMOMEDITERRANEAN  
 M= 15.0 Tn= 0 LOW SEMIARID  
 M' = 46.7 Itc= 382  
 m' = -2.8 Io= 1.1  
 P= 243 mm  
 PE= 919 mm

Imbibing	16 May.
Saturation	29 Jun.
Reserve Use	6 Sep.
Deficit	



BROKEN HILL (AUSTRALIA)

Latitude: 32°0'S Longitude: 141°28'E Altitude: 288 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 2. Euoceanic  
 + Variant .....: b. Low  
 Thermic types [A3.A3]  
 + Latitudinal zone ....: A. Warm  
 + Latitudinal belt ....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 3. Subwarm  
 Bioclimatic types [B6.2a.4b]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 6. XERIC-OCEANIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 2. THERMOMEDITERRANEAN  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 4. SEMIARID  
 + Ombrothermic subtype : b. LOW  
 Bioclimatic Classification .....: MepDC.Tme.Sar

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 114  
 Coldest semester of the year.....(Psw): 129  
 Warmest four months period of the year.....(Pcm1): 78  
 Following warmest four months period.....(Pcm2): 87  
 Positive precipitation dryest 3 months.....(Ppd): 54  
 Positive precipitation dryest 2 months.....(Ppd2): 32  
 Positive precipitation dryest 1 month.....(Ppd1): 16  
 Positive precipitation warmest 3 months.....(Pps): 61  
 Positive precipitation warmest 2 months.....(Pps2): 40  
 Positive precipitation warmest 1 month.....(Pps1): 22  
 Positive precipitation coldest 3 months.....(Ppw): 69  
 Positive precipitation coldest 2 months.....(Ppw2): 48  
 Positive precipitation coldest 1 month.....(Ppw1): 18

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	69	56	61	56

Seasonal rainfall rhythms: W > S > P > F

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.8  
 Average coldest month [T].....(Tmin): 10.0  
 Maximum temp. warmest month [M].....(Tmmax): 33.3  
 Minimum temp. coldest month [m].....(Tmmin): 5.0  
 Absolute Max.temp. warmest month [M'].....(Tamax): 46.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): -2.8  
 First warmest contrasted month [M].....(Tcmax): 32.8 (1)  
 First coldest contrasted month [m].....(Tcmin): 17.8 (1)  
 Estival temperature.....(Ts): 758  
 Positive temperature dryest 3 months.....(Tpd): 661  
 Positive temperature dryest 2 months.....(Tpd2): 403  
 Positive temperature dryest 1 month.....(Tpd1): 222  
 Positive temperature warmest 3 months.....(Tps): 758  
 Positive temperature warmest 2 months.....(Tps2): 511  
 Positive temperature warmest 1 month.....(Tps1): 258  
 Positive temperature coldest 3 months.....(Tpw): 325  
 Positive temperature coldest 2 months.....(Tpw2): 208  
 Positive temperature coldest 1 month.....(Tpw1): 100

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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)					o	o	o	o				
Agelid.....[m' > 0] (Pf)	o	o	o	o					o	o	o	o
HiperAgelid..[all>0] (Pf)	o	o	o	o					o	o	o	o

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 3.78  
 Mediterranean index of January.....(Im1): 8.60  
 Mediterranean index of January & February.....(Im2): 7.10  
 Mediterranean index of December to February...(Im3): 6.98

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	213	173	224	160	160	246	302	178	213	191	203	170
Tp	247	253	258	222	181	139	108	100	117	150	186	222
Io (Iom)	0.86	0.68	0.87	0.72	0.89	1.77	2.79	1.78	1.83	1.27	1.09	0.77
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	610 / 758			566 / 542			693 / 325			564 / 558		
Io (Iot)	0.804			1.045			2.132			1.010		
Semesters	December-May						June-November					
Pp(x10)/Tp	1176 / 1300						1257 / 883					
Io (Iosm)	0.905						1.423					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 2433/2183=1.11 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	213	173	224	160	160	246	302	178	213	191	203	170
Tp [T*10]	247	253	258	222	181	139	108	100	117	150	186	222
Iom [Pp/Tp]	86	68	87	72	89	177	279	178	183	127	109	77
Avm [200-Iom]	114	132	113	128	111	23	***	22	17	73	91	123
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	610 / 758			566 / 542			693 / 325			564 / 558		
Iot [Pp/Tp]	80			104			213			101		
Avs E[Avm<200]	359			262			***			287		
Weak lower arid [1]						Strong upper arid [2]						
Weak upper arid [4]						Strong lower semiarid [3]						
Weak lower semiarid [1]						Weak upper semiarid [3]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	15.83
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		30.38
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		26.22
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		1.36
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T] .....		13.37
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		8.63
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		22.41
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		7.48
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE] .....		0.26
+ Semiarid (0.5>Im>0.2)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		3.75
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....

- + Climate .....
- + Region .....
- + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.05	0.07	0.05	0.06	0.10	0.14	0.08	0.09	0.08	0.07	0.06	0.07
T-E ratio	11.38	11.62	10.00	8.13	6.25	4.88	4.50	5.25	6.75	8.37	10.00	11.12
Precipitation-effectiveness: 9.24						Temperature-efficiency .....						98.25
Moisture Index [MI=100*(P-PE)/PE] .....												-73.53
+ E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE] .....												73.52
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE .....												919.18
+ Third mesothermic (855<PE<997)												

