

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

WINDORAH (AUSTRALIA)

Altitude: 119 m.

Latitude: 25°26'S Longitude: 142°36'E

Temperature observation period.: 1948-1980 (33)

Rainfall observation period....: 1950-1980 (31)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	30.90	38.30	23.30	46.70	10.60	35.0	199.74
Feb.	30.10	37.20	23.30	45.60	12.80	60.0	165.96
Mar.	27.60	34.40	20.60	43.20	8.30	47.0	151.52
Apr.	22.70	30.00	15.00	39.70	1.60	14.0	84.47
May.	17.90	25.00	10.60	35.60	1.00	13.0	42.50
Jun.	14.50	21.10	7.20	35.00	-3.30	16.0	22.04
Jul.	13.50	21.10	6.10	32.00	-3.30	14.0	19.07
Aug.	15.90	23.90	7.80	35.60	-0.70	10.0	32.11
Sep.	19.80	28.30	11.70	40.00	-1.10	10.0	59.99
Oct.	24.40	32.80	16.10	44.40	3.90	21.0	118.51
Nov.	27.70	35.60	19.40	45.00	7.00	15.0	161.07
Dec.	29.80	37.20	22.20	45.10	9.90	22.0	191.06
Year	22.90	30.41	15.27	40.66	3.89	277	1248.0

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	501
Compensated thermicity index.....(Itc):	501
Simple continentality index.....(Ic):	17.4
Diurnality index.....(Id):	16.7
Annual ombrothermic index.....(Io):	1.01
Monthly dry ombrothermic index.....(Iod1):	0.63
Bimonthly dry ombrothermic index.....(Iod2):	0.56
Three monthly dry ombrothermic index.....(Iod3):	0.69
Four monthly dry ombrothermic index.....(Iod4):	0.78
Annual ombro-evaporation index.....(Ioe):	2.60
Annual positive temperature.....(Tp):	2748
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	492
Positive precipitation.....(Pp):	277

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	0	5	7	0

Latitudinal Belt...: Subtropical

Continentality.....: Oceanic - Low Semicontinental

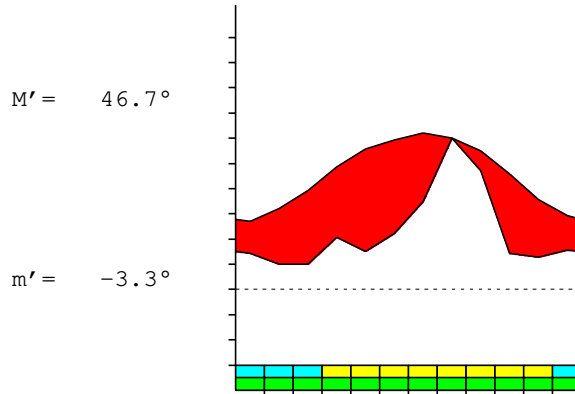
Bioclimate(Variant): TROPICAL XERIC (PLUVISEROTIN, SEMIARID)

Bioclimatic Belt...: UPPER THERMOTROPICAL LOW SEMIARID

WINDORAH (AUSTRALIA)

119 m

P= 277      25° 26' S      142° 36' E      33/31 y.  
 T= 22.9°    Ic= 17.4      Tp= 2748      Tn= 0  
 m= 6.1°      M= 21.1°      Itc= 501      Io= 1.0



TROPICAL XERIC (PLUVISEROTIN)  
 UPPER THERMOTROPICAL LOW SEMIARID

WATER INDEX CARD  
 Altitude: 119 m.

WINDORAH (AUSTRALIA)  
 Latitude: 25° 26' S

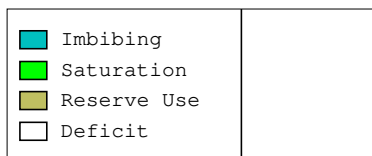
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	13.5	19	14	0	0	14	5	0	0	-0.2
Aug.	15.9	32	10	0	0	10	22	0	0	-0.6
Sep.	19.8	60	10	0	0	10	50	0	0	-0.8
Oct.	24.4	119	21	0	0	21	98	0	0	-0.8
Nov.	27.7	161	15	0	0	15	146	0	0	-0.9
Dec.	29.8	191	22	0	0	22	169	0	0	-0.8
Jan.	30.9	200	35	0	0	35	165	0	0	-0.8
Feb.	30.1	166	60	0	0	60	106	0	0	-0.6
Mar.	27.6	152	47	0	0	47	105	0	0	-0.6
Apr.	22.7	84	14	0	0	14	70	0	0	-0.8
May.	17.9	42	13	0	0	13	29	0	0	-0.6
Jun.	14.5	22	16	0	0	16	6	0	0	-0.2
Year	22.9	1248	277	*	*	277	971	0	0	*

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

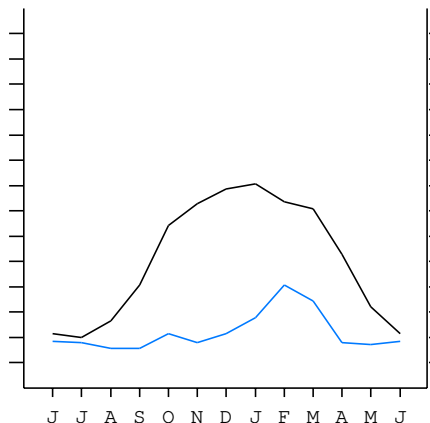
WINDORAH (AUSTRALIA)

25°26' S 142°36' E      119 m 33/31 y.

T= 22.9      Ic= 17.4      TROPICAL XERIC (PLUVISEROTIN)  
 m= 6.1      Tp= 2748      UPPER THERMOTROPICAL  
 M= 21.1      Tn= 0      LOW SEMIARID  
 M' = 46.7    Itc= 501  
 m' = -3.3    Io= 1.0  
 P= 277      mm    ———  
 PE= 1248    mm    ———



All over the year,  
 there is hydric deficit



WINDORAH (AUSTRALIA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1a]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semicontinental  
 + Variant .....: a. Low  
 Thermic types [A3.A2]  
 + Latitudinal zone .....: A. Warm  
 + Latitudinal belt .....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm  
 Bioclimatic types [A3e.2a.4b]  
 + Macroclimate .....: A. TROPICAL  
 + Bioclimate .....: 3. XERIC  
 + Bioclimatic variant ..: e. PLUVISEROTIN, SEMIARID  
 + Thermic type.....: 2. THERMOTROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 4. SEMIARID  
 + Ombrothermic subtype : b. LOW  
 Bioclimatic Classification .....: Trxe (Pse).Ttr.Sar

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 200  
 Coldest semester of the year.....(Psw): 77  
 Warmest four months period of the year.....(Pcm1): 132  
 Following warmest four months period.....(Pcm2): 90  
 Positive precipitation dryest 3 months.....(Ppd): 34  
 Positive precipitation dryest 2 months.....(Ppd2): 20  
 Positive precipitation dryest 1 month.....(Ppd1): 10  
 Positive precipitation warmest 3 months.....(Pps): 117  
 Positive precipitation warmest 2 months.....(Pps2): 95  
 Positive precipitation warmest 1 month.....(Pps1): 35  
 Positive precipitation coldest 3 months.....(Ppw): 40  
 Positive precipitation coldest 2 months.....(Ppw2): 30  
 Positive precipitation coldest 1 month.....(Ppw1): 14

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	40	46	117	74

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 30.9  
 Average coldest month [T].....(Tmin): 13.5  
 Maximum temp. warmest month [M].....(Tmmax): 38.3  
 Minimum temp. coldest month [m].....(Tmmin): 6.1  
 Absolute Max.temp. warmest month [M'].....(Tamax): 46.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.3  
 First warmest contrasted month [M].....(Tcmax): 32.8 (10)  
 First coldest contrasted month [m].....(Tcmin): 16.1 (10)  
 Dry station temperature.....(Td): 492  
 Positive temperature dryest 3 months.....(Tpd): 492  
 Positive temperature dryest 2 months.....(Tpd2): 357  
 Positive temperature dryest 1 month.....(Tpd1): 159  
 Positive temperature warmest 3 months.....(Tps): 908  
 Positive temperature warmest 2 months.....(Tps2): 610  
 Positive temperature warmest 1 month.....(Tps1): 309  
 Positive temperature coldest 3 months.....(Tpw): 439  
 Positive temperature coldest 2 months.....(Tpw2): 280  
 Positive temperature coldest 1 month.....(Tpw1): 135

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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): 4.51  
 Mediterranean index of January.....(Im1): 5.71  
 Mediterranean index of January & February.....(Im2): 3.85  
 Mediterranean index of December to February...(Im3): 4.76

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	220	350	600	470	140	130	160	140	100	100	210	150
Tp	298	309	301	276	227	179	145	135	159	198	244	277
Io (Iom)	0.74	1.13	1.99	1.70	0.62	0.73	1.10	1.04	0.63	0.51	0.86	0.54
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	1170 / 908			740 / 682			400 / 439			460 / 719		
Io (Iot)	1.289			1.085			0.911			0.640		
Semesters	December-May						June-November					
Pp(x10)/Tp	1910 / 1590						860 / 1158					
Io (Iosm)	1.201						0.743					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 2770/2748=1.01 [Weak upper arid \(8\) \[1241\]](#)

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	220	350	600	470	140	130	160	140	100	100	210	150
Tp [T*10]	298	309	301	276	227	179	145	135	159	198	244	277
Iom [Pp/Tp]	74	113	199	170	62	73	110	104	63	51	86	54
Avm [200-Iom]	126	87	1	30	138	127	90	96	137	149	114	146
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	1170 / 908			740 / 682			400 / 439			460 / 719		
Iot [Pp/Tp]	129			109			91			64		
Avs E[Avm<200]	214			295			323			409		
Weak lower arid [5]						Strong upper arid [2]						
Weak upper arid [2]						Strong lower semiarid [4]						
Weak lower semiarid [1]						Weak upper semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	17.40
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		48.48
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		37.02
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		1.84
+ Continental (1.7<CI<2.3)		
Rainfall Index of Lang (1925) [R=P/T] .....		12.10
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		8.42
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		19.37
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		8.27
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE] .....		0.22
+ Semiarid (0.5>Im>0.2)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		13.00
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

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

- + Climate .....
- + Region .....
- + Thermic type: 2. Macrothermic

Thornthwaite (1948)													
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
P-E ratio	0.10	0.19	0.15	0.04	0.05	0.06	0.06	0.04	0.03	0.07	0.04	0.06	
T-E ratio	13.90	13.55	12.42	10.22	8.05	6.52	6.07	7.15	8.91	10.98	12.47	13.41	
Precipitation-effectiveness:	8.86					Temperature-efficiency .....							123.66
Moisture Index [MI=100*(P-PE)/PE] .....	-77.81												
+ E.Dry (-110<MI<-66.7)													
Index of dryness [DI=100*d/PE] .....	77.80												
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE] .....	0.00												
+ No surplus (0<HI<10)													
Potential Evapotranspiration PE .....	1248.04												
+ Forth mesothermic (997<PE<1440)													

