

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

MALARQUE (ARGENTINA)

Altitude: 1418 m.

Latitude: 35°28'S Longitude: 69°35'W

Temperature observation period.: 1987-1994 (8)

Rainfall observation period....: 1987-1994 (8)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	18.61	28.89	8.33	37.78	1.11	7.4	108.53
Feb.	17.50	27.22	7.78	35.00	-2.22	20.1	86.00
Mar.	14.45	23.89	5.00	32.22	-3.89	29.5	68.86
Apr.	11.67	21.11	2.22	31.11	-7.78	14.0	47.15
May.	8.34	16.67	0.00	27.22	-15.00	24.4	29.73
Jun.	4.17	12.22	-3.89	28.89	-23.89	18.8	11.84
Jul.	4.17	12.22	-3.89	31.11	-18.89	36.6	12.56
Aug.	5.28	13.33	-2.78	27.22	-17.22	17.5	18.06
Sep.	8.89	17.78	0.00	31.11	-8.89	24.9	36.09
Oct.	12.50	21.11	3.89	31.11	-6.11	22.6	61.60
Nov.	14.44	24.44	4.44	33.89	-5.00	5.8	75.95
Dec.	17.50	27.22	7.78	35.00	1.11	45.2	102.38
Year	11.46	20.51	2.41	31.81	-8.89	267	658.77

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	198
Compensated thermicity index.....(Itc):	198
Simple continentality index.....(Ic):	14.4
Diurnality index.....(Id):	20.6
Annual ombrothermic index.....(Io):	1.94
Monthly estival ombrothermic index.....(Ios1):	0.40
Bimonthly estival ombrothermic index.....(Ios2):	0.76
Threemonthly estival ombrothermic index.....(Ios3):	1.36
Fourmonthly estival ombrothermic index.....(Ios4):	1.15
Annual ombro-evaporation index.....(Ioe):	0.96
Annual positive temperature.....(Tp):	1375
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	536
Positive precipitation.....(Pp):	267

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	2	5	3	2	0

Latitudinal Belt...: Subtropical

Continentality.....: Oceanic - High Euoceanic

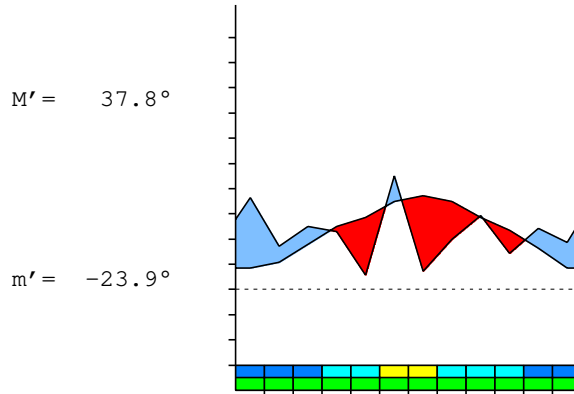
Bioclimate.....: MEDITERRANEAN XERIC-OCEANIC

Bioclimatic Belt...: LOW SUPRAMEDITERRANEAN UPPER SEMIARID

MALARQUE (ARGENTINA)

1418 m

P= 267 35° 28' S 69° 35' W 8/8 y.
 T= 11.5° Ic= 14.4 Tp= 1375 Tn= 0
 m= -3.9° M= 12.2° Itc= 198 Io= 1.9



MEDITERRANEAN XERIC-OCEANIC
 LOW SUPRAMEDITERRANEAN UPPER SEMIARID

WATER INDEX CARD MALARQUE (ARGENTINA)
 Altitude: 1418 m. Latitude: 35° 28' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	4.2	13	37	24	31	13	0	0	0	1.9
Aug.	5.3	18	18	-1	30	18	0	0	0	0.0
Sep.	8.9	36	25	-11	19	36	0	0	0	-0.3
Oct.	12.5	62	23	-19	0	42	20	0	0	-0.6
Nov.	14.4	76	6	0	0	6	70	0	0	-0.9
Dec.	17.5	102	45	0	0	45	57	0	0	-0.5
Jan.	18.6	109	7	0	0	7	101	0	0	-0.9
Feb.	17.5	86	20	0	0	20	66	0	0	-0.7
Mar.	14.4	69	30	0	0	30	39	0	0	-0.5
Apr.	11.7	47	14	0	0	14	33	0	0	-0.7
May.	8.3	30	24	0	0	24	5	0	0	-0.1
Jun.	4.2	12	19	7	7	12	0	0	0	0.5
Year	11.5	659	267	*	*	267	392	0	0	*

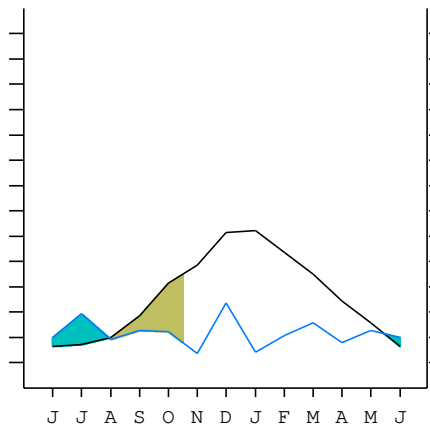
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

MALARQUE (ARGENTINA)

35°28' S 69°35' W 1418 m 8/8 y.

T= 11.5 Ic= 14.4 MEDITERRANEAN XERIC-OCEANIC
 m= -3.9 Tp= 1375 LOW SUPRAMEDITERRANEAN
 M= 12.2 Tn= 0 UPPER SEMIARID
 M' = 37.8 Itc= 198
 m' = -23.9 Io= 1.9
 P= 267 mm ———
 PE= 659 mm ———

Imbibing	14 May.
Saturation	30 Jul.
Reserve Use	15 Oct.
Deficit	



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2a]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: a. High
 Thermic types [B1.B4]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Subtropical
 + Thermic type: B. Temperate
 + Thermic subtype: 4. Temperate
 Bioclimatic types [B6.4b.4a]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 6. XERIC-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 4. SUPRAMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 4. SEMIARID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic Classification: MepDC.Sme.Sar

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 131
 Coldest semester of the year.....(Psw): 136
 Warmest four months period of the year.....(Pcm1): 102
 Following warmest four months period.....(Pcm2): 94
 Positive precipitation dryest 3 months.....(Ppd): 53
 Positive precipitation dryest 2 months.....(Ppd2): 28
 Positive precipitation dryest 1 month.....(Ppd1): 6
 Positive precipitation warmest 3 months.....(Pps): 73
 Positive precipitation warmest 2 months.....(Pps2): 28
 Positive precipitation warmest 1 month.....(Pps1): 7
 Positive precipitation coldest 3 months.....(Ppw): 73
 Positive precipitation coldest 2 months.....(Ppw2): 55
 Positive precipitation coldest 1 month.....(Ppw1): 19

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	72	53	72	67

Seasonal rainfall rhythms: W > S > F > P

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 18.6
 Average coldest month [T].....(Tmin): 4.2
 Maximum temp. warmest month [M].....(Tmmax): 28.9
 Minimum temp. coldest month [m].....(Tmmin): -3.9
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.8
 Absolute Min.temp. coldest month [m'].....(Tamin): -23.9
 First warmest contrasted month [M].....(Tcmax): 28.9 (1)
 First coldest contrasted month [m].....(Tcmin): 8.3 (1)
 Estival temperature.....(Ts): 536
 Positive temperature dryest 3 months.....(Tpd): 358
 Positive temperature dryest 2 months.....(Tpd2): 361
 Positive temperature dryest 1 month.....(Tpd1): 144
 Positive temperature warmest 3 months.....(Tps): 536
 Positive temperature warmest 2 months.....(Tps2): 361
 Positive temperature warmest 1 month.....(Tps1): 186
 Positive temperature coldest 3 months.....(Tpw): 136
 Positive temperature coldest 2 months.....(Tpw2): 83
 Positive temperature coldest 1 month.....(Tpw1): 42

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 2.47
 Mediterranean index of January.....(Im1): 14.67
 Mediterranean index of January & February.....(Im2): 7.07
 Mediterranean index of December to February...(Im3): 4.08

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	452	74	201	295	140	244	188	366	175	249	226	58
Tp	175	186	175	145	117	83	42	42	53	89	125	144
Io (Iom)	2.58	0.40	1.15	2.04	1.20	2.93	4.51	8.78	3.31	2.80	1.81	0.40
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	727 / 536			679 / 345			729 / 136			533 / 358		
Io (Iot)	1.356			1.970			5.352			1.488		
Semesters	December-May						June-November					
Pp(x10)/Tp	1406 / 881						1262 / 495					
Io (Iosm)	1.596						2.552					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 2668/1375=1.94 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	452	74	201	295	140	244	188	366	175	249	226	58
Tp [T*10]	175	186	175	145	117	83	42	42	53	89	125	144
Iom [Pp/Tp]	258	40	115	204	120	293	451	878	331	280	181	40
Avm [200-Iom]	***	160	85	***	80	***	***	***	***	***	19	160
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	727 / 536			679 / 345			729 / 136			533 / 358		
Iot [Pp/Tp]	136			197			535			149		
Avs E[Avm<200]	***			***			***			***		
Upper hyperarid [1]							Strong lower arid [1]					
Strong lower semiarid [2]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	14.44
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		21.91
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		20.44
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.13
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		23.28
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		12.43
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		32.56
+ Semiarid (50>Q>30)		
I of Dantin & Revenga (1940) [DR=100*T/P]		4.30
+ Arid (6>DR>3)		
Aridity Index of UNEP [I=P/PE]		0.41
+ Semiarid (0.5>Im>0.2)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		7.66
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.02	0.07	0.12	0.06	0.12	0.11	0.23	0.10	0.12	0.10	0.02	0.18
T-E ratio	8.37	7.88	6.50	5.25	3.75	1.88	1.88	2.38	4.00	5.63	6.50	7.88
Precipitation-effectiveness: 12.62						Temperature-efficiency						61.88
Moisture Index [MI=100*(P-PE)/PE]												-59.50
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												59.49
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												658.77
+ First mesothermic (570<PE<712)												

