

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

GENERAL VILLEGAS (ARGENTINA)

Altitude: 117 m.

Latitude: 35°1'S Longitude: 63°1'W

Temperature observation period.: 1941-1950 (10)

Rainfall observation period....: 1941-1950 (10)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	24.90	32.70	15.90	42.60	5.10	66.0	148.97
Feb.	23.80	31.60	15.30	42.60	4.80	96.0	117.77
Mar.	19.00	26.50	12.40	35.60	0.00	129.0	81.09
Apr.	15.80	23.20	9.20	34.00	-2.00	65.0	52.56
May.	11.90	19.20	6.20	31.60	-5.00	40.0	30.75
Jun.	8.50	15.50	3.00	26.00	-10.00	23.0	15.99
Jul.	8.20	15.40	2.30	28.00	-11.00	28.0	15.96
Aug.	9.50	17.20	3.40	33.40	-9.20	20.0	22.15
Sep.	12.90	20.80	5.90	37.40	-3.00	36.0	39.62
Oct.	16.40	24.30	8.90	35.20	-3.00	68.0	67.32
Nov.	21.00	29.00	11.40	38.80	-1.00	55.0	106.09
Dec.	23.90	32.10	14.80	41.40	0.00	78.0	141.21
Year	16.32	23.96	9.06	35.55	-2.86	704	839.48

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	340
Compensated thermicity index.....(Itc):	340
Simple continentality index.....(Ic):	16.7
Diurnality index.....(Id):	17.6
Annual ombrothermic index.....(Io):	3.60
Monthly estival ombrothermic index.....(Ios1):	2.65
Bimonthly estival ombrothermic index.....(Ios2):	3.33
Threemonthly estival ombrothermic index.....(Ios3):	3.31
Fourmonthly estival ombrothermic index.....(Ios4):	3.15
Annual ombro-evaporation index.....(Ioe):	2.32
Annual positive temperature.....(Tp):	1958
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	726
Positive precipitation.....(Pp):	704

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

Latitudinal Belt...: Subtropical

Continentalty.....: Oceanic - Low Euoceanic

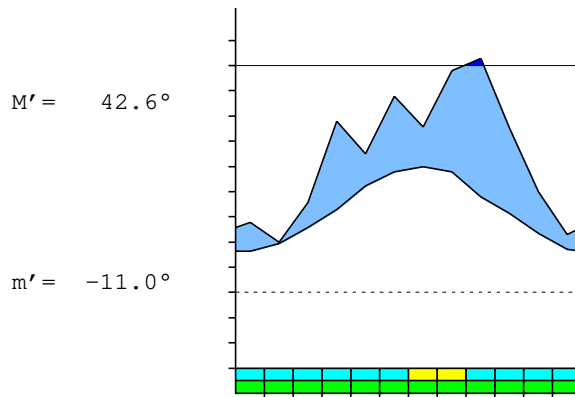
Bioclimate(Variant): TEMPERATE XERIC (SUBMEDITERRANEAN)

Bioclimatic Belt...: UPPER THERMOTEMPERATE UPPER DRY

GENERAL VILLEGAS (ARGENTINA)

117 m

P= 704 35° 1'S 63° 1'W 10/10 y.  
 T= 16.3° Ic= 16.7 Tp= 1958 Tn= 0  
 m= 2.3° M= 15.4° Itc= 340 Io= 3.6



TEMPERATE XERIC (SUBMEDITERRANEAN)  
 UPPER THERMOTEMPERATE UPPER DRY

WATER INDEX CARD GENERAL VILLEGAS (ARGENTINA)  
 Altitude: 117 m. Latitude: 35° 1'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	8.2	16	28	12	89	16	0	0	0	0.7
Aug.	9.5	22	20	-2	86	22	0	0	0	0.0
Sep.	12.9	40	36	-4	83	40	0	0	0	0.0
Oct.	16.4	67	68	1	84	67	0	0	0	0.0
Nov.	21.0	106	55	-51	32	106	0	0	0	-0.4
Dec.	23.9	141	78	-32	0	110	31	0	0	-0.4
Jan.	24.9	149	66	0	0	66	83	0	0	-0.5
Feb.	23.8	118	96	0	0	96	22	0	0	-0.1
Mar.	19.0	81	129	48	48	81	0	0	0	0.5
Apr.	15.8	53	65	12	60	53	0	0	0	0.2
May.	11.9	31	40	9	70	31	0	0	0	0.3
Jun.	8.5	16	23	7	77	16	0	0	0	0.4
Year	16.3	839	704	*	*	704	135	0	0	*

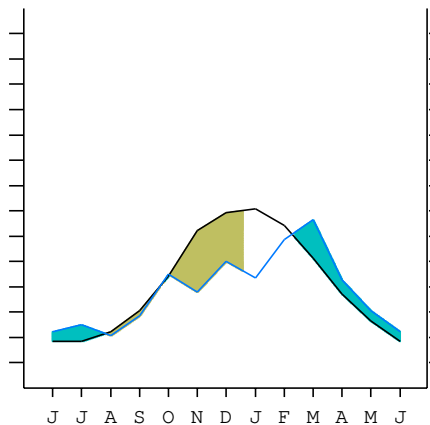
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

GENERAL VILLEGAS (ARGENTINA)

35°1'S 63°1'W 117 m 10/10 y.

T= 16.3 Ic= 16.7 TEMPERATE XERIC (SUBMEDITERRANEAN)  
 m= 2.3 Tp= 1958 UPPER THERMOTEMPERATE  
 M= 15.4 Tn= 0 UPPER DRY  
 M' = 42.6 Itc= 340  
 m' = -11.0 Io= 3.6  
 P= 704 mm ———  
 PE= 839 mm ———

Imbibing	10 Feb.
Saturation	1 Oct.
Reserve Use	16 Dec.
Deficit	



GENERAL VILLEGAS (ARGENTINA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 2. Euoceanic  
 + Variant .....: b. Low  
 Thermic types [B1.A3]  
 + Latitudinal zone ....: B. Temperate  
 + Latitudinal belt ....: 1. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 3. Subwarm  
 Bioclimatic types [C1b.2a.5a]  
 + Macrobioclimate .....: C. TEMPERATE  
 + Bioclimate .....: 1. XERIC  
 + Bioclimatic variant .: b. SUBMEDITERRANEAN  
 + Thermic type.....: 2. THERMOTEMPERATE  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER  
 Bioclimatic Classification .....: Teho (Sbm).Tte.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 492  
 Coldest semester of the year.....(Psw): 212  
 Warmest four months period of the year.....(Pcm1): 295  
 Following warmest four months period.....(Pcm2): 257  
 Positive precipitation dryest 3 months.....(Ppd): 71  
 Positive precipitation dryest 2 months.....(Ppd2): 48  
 Positive precipitation dryest 1 month.....(Ppd1): 20  
 Positive precipitation warmest 3 months.....(Pps): 240  
 Positive precipitation warmest 2 months.....(Pps2): 144  
 Positive precipitation warmest 1 month.....(Pps1): 66  
 Positive precipitation coldest 3 months.....(Ppw): 71  
 Positive precipitation coldest 2 months.....(Ppw2): 51  
 Positive precipitation coldest 1 month.....(Ppw1): 28

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	71	159	240	234

Seasonal rainfall rhythms: S > F > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.9  
 Average coldest month [T].....(Tmin): 8.2  
 Maximum temp. warmest month [M].....(Tmmax): 32.7  
 Minimum temp. coldest month [m].....(Tmmin): 2.3  
 Absolute Max.temp. warmest month [M'].....(Tamax): 42.6  
 Absolute Min.temp. coldest month [m'].....(Tamin): -11.0  
 First warmest contrasted month [M].....(Tcmax): 29.0 (11)  
 First coldest contrasted month [m].....(Tcmin): 11.4 (11)  
 Estival temperature.....(Ts): 726  
 Positive temperature dryest 3 months.....(Tpd): 262  
 Positive temperature dryest 2 months.....(Tpd2): 177  
 Positive temperature dryest 1 month.....(Tpd1): 95  
 Positive temperature warmest 3 months.....(Tps): 726  
 Positive temperature warmest 2 months.....(Tps2): 488  
 Positive temperature warmest 1 month.....(Tps1): 249  
 Positive temperature coldest 3 months.....(Tpw): 262  
 Positive temperature coldest 2 months.....(Tpw2): 167  
 Positive temperature coldest 1 month.....(Tpw1): 82

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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	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): 1.19  
 Mediterranean index of January.....(Im1): 2.26  
 Mediterranean index of January & February.....(Im2): 1.65  
 Mediterranean index of December to February...(Im3): 1.70

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	780	660	960	1290	650	400	230	280	200	360	680	550
Tp	239	249	238	190	158	119	85	82	95	129	164	210
Io (Iom)	3.26	2.65	4.03	6.79	4.11	3.36	2.71	3.41	2.11	2.79	4.15	2.62
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	2400 / 726			2340 / 467			710 / 262			1590 / 503		
Io (Iot)	3.306			5.011			2.710			3.161		
Semesters	December-May						June-November					
Pp(x10)/Tp	4740 / 1193						2300 / 765					
Io (Iosm)	3.973						3.007					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 7040/1958=3.60 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	780	660	960	1290	650	400	230	280	200	360	680	550
Tp [T*10]	239	249	238	190	158	119	85	82	95	129	164	210
Iom [Pp/Tp]	326	265	403	679	411	336	271	341	211	279	415	262
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	2400 / 726			2340 / 467			710 / 262			1590 / 503		
Iot [Pp/Tp]	331			501			271			316		
Avs E[Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 16.70
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	29.08
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	26.14
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....	1.32
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T] .....	43.15
+ Semiarid (60>R>40)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	26.75
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....	66.17
+ Subhumid (90>Q>50)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	2.32
+ Semiarid (3>DR>2)	
Aridity Index of UNEP [I=P/PE] .....	0.84
+ Humid (I>0.65)	
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....	23.64
+ 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	0.23	0.36	0.57	0.29	0.19	0.11	0.14	0.09	0.16	0.30	0.21	0.29
T-E ratio	11.20	10.71	8.55	7.11	5.35	3.82	3.69	4.27	5.80	7.38	9.45	10.75
Precipitation-effectiveness: 29.53						Temperature-efficiency .....						88.11
Moisture Index [MI=100*(P-PE)/PE] .....												
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE] .....												
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....												
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE .....												
+ Second mesothermic (712<PE<855)												

