

# Phytosociological Research Center

www.globalbioclimatics.org

## Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

VILLA NOUGUES (ARGENTINA)

Altitude: 1388 m.

Latitude: 26°53'S Longitude: 65°23'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.	19.10	24.20	16.30	33.40	7.80	253.0	99.58
Feb.	18.20	22.90	15.50	32.00	6.50	209.0	80.32
Mar.	16.10	20.50	13.70	29.30	5.00	223.0	69.34
Apr.	14.00	18.50	11.60	30.30	2.10	110.0	51.88
May.	11.30	16.00	8.90	29.90	-4.50	60.0	36.95
Jun.	9.20	14.10	6.40	31.30	-2.80	30.0	25.74
Jul.	8.90	14.40	5.60	32.50	-4.20	16.0	25.95
Aug.	10.80	16.60	7.00	34.53	-4.00	17.0	36.12
Sep.	12.70	18.50	9.50	33.00	-2.00	35.0	46.99
Oct.	14.80	20.80	11.80	32.90	1.80	108.0	64.96
Nov.	16.70	22.50	13.60	32.20	4.60	155.0	77.95
Dec.	19.10	24.30	15.90	34.70	7.40	148.0	100.42
Year	14.24	19.44	11.32	32.17	1.47	1364	716.20

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	342
Compensated thermicity index.....(Itc):	342
Simple continentality index.....(Ic):	10.2
Diurnality index.....(Id):	9.6
Annual ombrothermic index.....(Io):	7.98
Monthly dry ombrothermic index.....(Iod1):	1.80
Bimonthly dry ombrothermic index.....(Iod2):	1.68
Three monthly dry ombrothermic index.....(Iod3):	2.18
Four monthly dry ombrothermic index.....(Iod4):	3.06
Annual ombro-evaporation index.....(Ioe):	4.09
Annual positive temperature.....(Tp):	1709
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	289
Positive precipitation.....(Pp):	1364

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

Latitudinal Belt...: Subtropical

Continentalty.....: Hyperoceanic - Low Subhyperoceanic

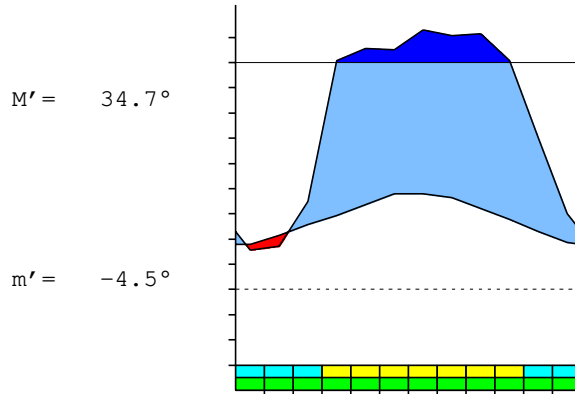
Bioclimate(Variant): TROPICAL PLUVISEASONAL (MESOPHYTIC)

Bioclimatic Belt...: UPPER MESOTROPICAL LOW HUMID

VILLA NOUGUES (ARGENTINA)

1388 m

P= 1364      26° 53' S      65° 23' W      10/10 y.  
 T= 14.2°      Ic= 10.2      Tp= 1709      Tn= 0  
 m= 5.6°      M= 14.4°      Itc= 342      Io= 8.0



TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 UPPER MESOTROPICAL LOW HUMID

WATER INDEX CARD VILLA NOUGUES (ARGENTINA)

Altitude: 1388 m.      Latitude: 26° 53' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	8.9	26	16	-10	90	26	0	0	16	-0.3
Aug.	10.8	36	17	-19	71	36	0	0	8	-0.5
Sep.	12.7	47	35	-12	59	47	0	0	4	-0.2
Oct.	14.8	65	108	41	100	65	0	2	3	0.6
Nov.	16.7	78	155	0	100	78	0	77	40	0.9
Dec.	19.1	100	148	0	100	100	0	48	44	0.4
Jan.	19.1	100	253	0	100	100	0	153	99	1.5
Feb.	18.2	80	209	0	100	80	0	129	114	1.6
Mar.	16.1	69	223	0	100	69	0	154	134	2.2
Apr.	14.0	52	110	0	100	52	0	58	96	1.1
May.	11.3	37	60	0	100	37	0	23	59	0.6
Jun.	9.2	26	30	0	100	26	0	4	32	0.1
Year	14.2	716	1364	*	*	716	0	648	648	*

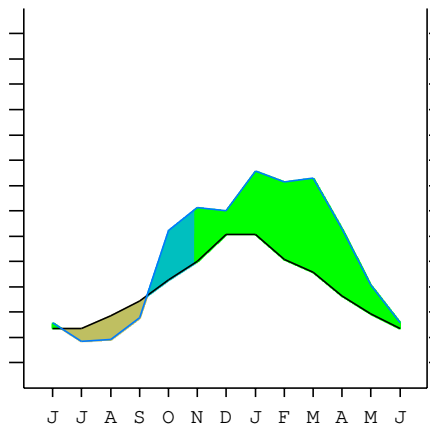
R = Reserve      VR = Variation of the reserve      RE = Real evapotranspiration  
 DR = Drainage      HC = Humidity coefficient      DF = Deficit      SP = Superavit

VILLA NOUGUES (ARGENTINA)

26°53' S      65°23' W      1388 m 10/10 y.

T= 14.2      Ic= 10.2      TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 m= 5.6      Tp= 1709      UPPER MESOTROPICAL  
 M= 14.4      Tn= 0      LOW HUMID  
 M' = 34.7      Itc= 342  
 m' = -4.5      Io= 8.0  
 P= 1364      mm      ———  
 PE= 716      mm      ———

Imbibing	7 Sep.
Saturation	29 Oct.
Reserve Use	9 Jun.
Deficit	



VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A3b]  
 + Type .....: A. Hyperoceanic  
 + Subtype .....: 3. Subhyperoceanic  
 + Variant .....: b. Low  
 Thermic types [A3.B4]  
 + Latitudinal zone .....: A. Warm  
 + Latitudinal belt .....: 3. Subtropical  
 + Thermic type .....: B. Temperate  
 + Thermic subtype .....: 4. Temperate  
 Bioclimatic types [A4.3a.7b]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 4. PLUVISEASONAL  
 + Bioclimatic variant ..:  
 + Thermic type.....: 3. MESOTROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : b. LOW  
 Bioclimatic Classification .....: Trde.Mtr.Hum

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1096  
 Coldest semester of the year.....(Psw): 268  
 Warmest four months period of the year.....(Pcm1): 765  
 Following warmest four months period.....(Pcm2): 423  
 Positive precipitation dryest 3 months.....(Ppd): 63  
 Positive precipitation dryest 2 months.....(Ppd2): 33  
 Positive precipitation dryest 1 month.....(Ppd1): 16  
 Positive precipitation warmest 3 months.....(Pps): 610  
 Positive precipitation warmest 2 months.....(Pps2): 401  
 Positive precipitation warmest 1 month.....(Pps1): 253  
 Positive precipitation coldest 3 months.....(Ppw): 63  
 Positive precipitation coldest 2 months.....(Ppw2): 46  
 Positive precipitation coldest 1 month.....(Ppw1): 16

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	63	298	610	393

Seasonal rainfall rhythms: S > F > P > W

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 19.1  
 Average coldest month [T].....(Tmin): 8.9  
 Maximum temp. warmest month [M].....(Tmmax): 24.3  
 Minimum temp. coldest month [m].....(Tmmin): 5.6  
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): -4.5  
 First warmest contrasted month [M].....(Tcmax): 16.6 (8)  
 First coldest contrasted month [m].....(Tcmin): 7.0 (8)  
 Dry station temperature.....(Td): 289  
 Positive temperature dryest 3 months.....(Tpd): 289  
 Positive temperature dryest 2 months.....(Tpd2): 197  
 Positive temperature dryest 1 month.....(Tpd1): 89  
 Positive temperature warmest 3 months.....(Tps): 564  
 Positive temperature warmest 2 months.....(Tps2): 382  
 Positive temperature warmest 1 month.....(Tps1): 191  
 Positive temperature coldest 3 months.....(Tpw): 289  
 Positive temperature coldest 2 months.....(Tpw2): 181  
 Positive temperature coldest 1 month.....(Tpw1): 89

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

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

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.53  
 Mediterranean index of January.....(Im1): 0.39  
 Mediterranean index of January & February.....(Im2): 0.39  
 Mediterranean index of December to February...(Im3): 0.46

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1480	2530	2090	2230	1100	600	300	160	170	350	1080	1550
Tp	191	191	182	161	140	113	92	89	108	127	148	167
Io (Iom)	7.75	13.2	11.5	13.9	7.86	5.31	3.26	1.80	1.57	2.76	7.30	9.28
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	6100 / 564			3930 / 414			630 / 289			2980 / 442		
Io (Iot)	10.82			9.493			2.180			6.742		
Semesters	December-May						June-November					
Pp(x10)/Tp	10030 / 978						3610 / 731					
Io (Iosm)	10.26						4.938					

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 13640/1709=7.98 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1480	2530	2090	2230	1100	600	300	160	170	350	1080	1550
Tp [T*10]	191	191	182	161	140	113	92	89	108	127	148	167
Iom [Pp/Tp]	775	\$\$\$	\$\$\$	\$\$\$	786	531	326	180	157	276	730	928
Avm [200-Iom]	***	***	***	***	***	***	***	20	43	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	6100 / 564			3930 / 414			630 / 289			2980 / 442		
Iot [Pp/Tp]	1082			949			218			674		
Avs E[Avm<200]	***			***			***			***		
Strong upper semiarid [1]						Weak upper semiarid [1]						

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 10.20  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 17.95  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 14.89  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.02  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 95.78  
 + Temperate warm (100>R>60)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 56.27  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 243.95  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 1.04  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 1.90  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 46.93  
 + Very low (K<60)

VILLA NOUGUES (ARGENTINA)

Latitude: 26°53'S Longitude: 65°23'W Altitude: 1388 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....: 3. Termoxeroteric (Mediterranean warm)  
 + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.20	0.99	1.13	0.55	0.30	0.15	0.08	0.08	0.16	0.52	0.74	0.66
T-E ratio	8.60	8.19	7.25	6.30	5.09	4.14	4.00	4.86	5.71	6.66	7.52	8.60
Precipitation-effectiveness: 65.47						Temperature-efficiency .....: 76.91						
Moisture Index [MI=100*(P-PE)/PE] .....: 90.45 + B4.Humid highest-humid (80<MI<100)												
Index of dryness [DI=100*d/PE] .....: 0.00 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....: 90.45 + Strong surplus (20<HI)												
Potential Evapotranspiration PE .....: 716.20 + Second mesothermic (712<PE<855)												

