

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

SAN JUAN (ARGENTINA)

Altitude: 630 m.

Latitude: 31°37'S Longitude: 68°32'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.	25.90	33.90	18.30	42.80	10.20	27.0	156.22
Feb.	24.00	32.60	16.70	42.60	7.20	17.0	116.89
Mar.	20.60	29.00	13.90	39.20	2.00	16.0	90.23
Apr.	16.60	25.20	9.30	37.40	-2.90	6.0	54.60
May.	11.70	20.30	4.80	33.50	-5.00	1.0	27.68
Jun.	8.30	16.90	1.40	32.40	-5.60	4.0	13.68
Jul.	7.80	16.50	0.30	34.00	-7.30	4.0	12.95
Aug.	10.50	19.30	2.90	32.20	-4.90	3.0	23.73
Sep.	14.50	23.20	6.50	36.00	-2.70	8.0	44.94
Oct.	19.10	27.80	10.70	38.90	2.50	6.0	83.09
Nov.	22.20	31.00	14.10	42.60	1.50	16.0	112.16
Dec.	25.40	33.80	17.20	41.20	6.00	9.0	152.02
Year	17.22	25.79	9.68	37.73	0.08	117	888.18

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	340
Compensated thermicity index.....(Itc):	341
Simple continentality index.....(Ic):	18.1
Diurnality index.....(Id):	17.1
Annual ombrothermic index.....(Io):	0.57
Monthly estival ombrothermic index.....(Ios1):	0.35
Bimonthly estival ombrothermic index.....(Ios2):	0.88
Three monthly estival ombrothermic index.....(Ios3):	0.70
Four monthly estival ombrothermic index.....(Ios4):	0.71
Annual ombro-evaporation index.....(Ioe):	3.50
Annual positive temperature.....(Tp):	2066
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	753
Positive precipitation.....(Pp):	117

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	0	1	11	0

Latitudinal Belt...: Subtropical

Continentalty.....: Oceanic - Low Semicontinental

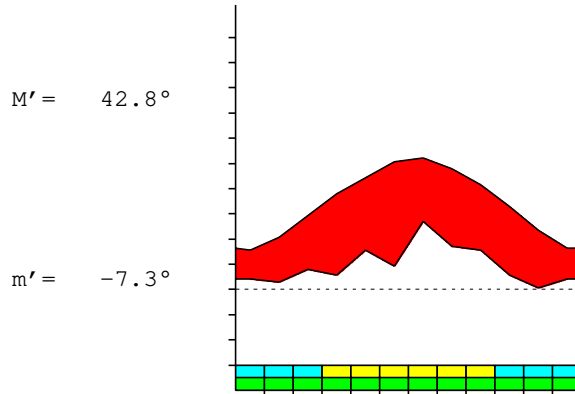
Bioclimate(Variant): MEDITERRANEAN DESERTIC-OCEANIC (STEPPIIC)

Bioclimatic Belt...: LOW MESOMEDITERRANEAN LOW ARID

SAN JUAN (ARGENTINA)

630 m

P= 117 31° 37' S 68° 32' W 10/10 y.
 T= 17.2° Ic= 18.1 Tp= 2066 Tn= 0
 m= 0.3° M= 16.5° Itc= 341 Io= 0.6



MEDITERRANEAN DESERTIC-OCEANIC (STEPPIC)
 LOW MESOMEDITERRANEAN LOW ARID

WATER INDEX CARD SAN JUAN (ARGENTINA)
 Altitude: 630 m. Latitude: 31° 37' S

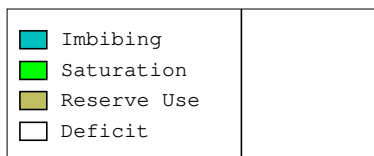
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	7.8	13	4	0	0	4	9	0	0	-0.6
Aug.	10.5	24	3	0	0	3	21	0	0	-0.8
Sep.	14.5	45	8	0	0	8	37	0	0	-0.8
Oct.	19.1	83	6	0	0	6	77	0	0	-0.9
Nov.	22.2	112	16	0	0	16	96	0	0	-0.8
Dec.	25.4	152	9	0	0	9	143	0	0	-0.9
Jan.	25.9	156	27	0	0	27	129	0	0	-0.8
Feb.	24.0	117	17	0	0	17	100	0	0	-0.8
Mar.	20.6	90	16	0	0	16	74	0	0	-0.8
Apr.	16.6	55	6	0	0	6	49	0	0	-0.8
May.	11.7	28	1	0	0	1	27	0	0	-0.9
Jun.	8.3	14	4	0	0	4	10	0	0	-0.7
Year	17.2	888	117	*	*	117	771	0	0	*

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

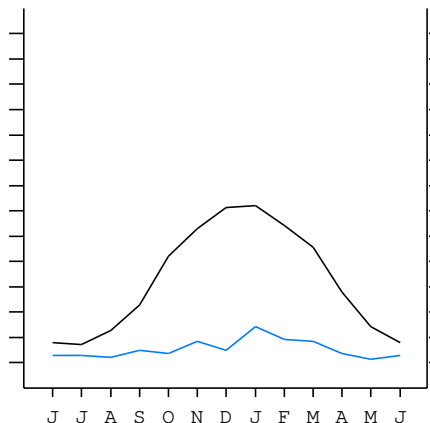
SAN JUAN (ARGENTINA)

31°37' S 68°32' W 630 m 10/10 y.

T= 17.2 Ic= 18.1 MEDITERRANEAN DESERTIC-OCEANIC (STEPPIC)
 m= 0.3 Tp= 2066 LOW MESOMEDITERRANEAN
 M= 16.5 Tn= 0 LOW ARID
 M' = 42.8 Itc= 341
 m' = -7.3 Io= 0.6
 P= 117 mm ———
 PE= 888 mm ———



All over the year,
 there is hydric deficit



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1a]
 + Type: B. Oceanic
 + Subtype: 1. Semicontinental
 + Variant: a. Low
 Thermic types [A3.A3]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm
 Bioclimatic types [B4a.3b.3b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 4. DESERTIC-OCEANIC
 + Bioclimatic variant ..: a. STEPPIC
 + Thermic type.....: 3. MESOMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 3. ARID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Mexc(Stp).Mme.Ari

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 91
 Coldest semester of the year.....(Psw): 26
 Warmest four months period of the year.....(Pcm1): 69
 Following warmest four months period.....(Pcm2): 27
 Positive precipitation dryest 3 months.....(Ppd): 9
 Positive precipitation dryest 2 months.....(Ppd2): 5
 Positive precipitation dryest 1 month.....(Ppd1): 1
 Positive precipitation warmest 3 months.....(Pps): 53
 Positive precipitation warmest 2 months.....(Pps2): 36
 Positive precipitation warmest 1 month.....(Pps1): 27
 Positive precipitation coldest 3 months.....(Ppw): 11
 Positive precipitation coldest 2 months.....(Ppw2): 8
 Positive precipitation coldest 1 month.....(Ppw1): 4

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	11	30	53	23

Seasonal rainfall rhythms: S > P > F > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.9
 Average coldest month [T].....(Tmin): 7.8
 Maximum temp. warmest month [M].....(Tmmax): 33.9
 Minimum temp. coldest month [m].....(Tmmin): 0.3
 Absolute Max.temp. warmest month [M'].....(Tamax): 42.8
 Absolute Min.temp. coldest month [m'].....(Tamin): -7.3
 First warmest contrasted month [M].....(Tcmax): 27.8 (10)
 First coldest contrasted month [m].....(Tcmin): 10.7 (10)
 Estival temperature.....(Ts): 753
 Positive temperature dryest 3 months.....(Tpd): 278
 Positive temperature dryest 2 months.....(Tpd2): 200
 Positive temperature dryest 1 month.....(Tpd1): 117
 Positive temperature warmest 3 months.....(Tps): 753
 Positive temperature warmest 2 months.....(Tps2): 513
 Positive temperature warmest 1 month.....(Tps1): 259
 Positive temperature coldest 3 months.....(Tpw): 266
 Positive temperature coldest 2 months.....(Tpw2): 161
 Positive temperature coldest 1 month.....(Tpw1): 78

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 7.59
 Mediterranean index of January.....(Im1): 5.79
 Mediterranean index of January & February.....(Im2): 6.21
 Mediterranean index of December to February...(Im3): 8.02

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	90	270	170	160	60	10	40	40	30	80	60	160
Tp	254	259	240	206	166	117	83	78	105	145	191	222
Io (Iom)	0.35	1.04	0.71	0.78	0.36	0.09	0.48	0.51	0.29	0.55	0.31	0.72
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	530 / 753			230 / 489			110 / 266			300 / 558		
Io (Iot)	0.704			0.470			0.414			0.538		
Semesters	December-May						June-November					
Pp(x10)/Tp	760 / 1242						410 / 824					
Io (Iosm)	0.612						0.498					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 1170/2066=0.57 Weak lower arid (6) [1780]

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	90	270	170	160	60	10	40	40	30	80	60	160
Tp [T*10]	254	259	240	206	166	117	83	78	105	145	191	222
Iom [Pp/Tp]	35	104	71	78	36	9	48	51	29	55	31	72
Avm [200-Iom]	165	96	129	122	164	191	152	149	171	145	169	128
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	530 / 753			230 / 489			110 / 266			300 / 558		
Iot [Pp/Tp]	70			47			41			54		
Avs E[Avm<200]	389			478			472			441		
Lower ultrahyperarid [1]							Lower hyperarid [1]					
Upper hyperarid [3]							Strong lower arid [3]					
Weak lower arid [3]							Strong upper arid [4]					
Strong lower semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	18.10
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		38.30
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		32.33
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.57
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		6.80
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		4.30
+ Extremely arid -desert- (5>Ia>0)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		10.18
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P]		14.72
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE]		0.13
+ Arid (0.2>Im>0.05)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		6.23
+ 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	0.08	0.05	0.05	0.02	0.00	0.02	0.02	0.01	0.03	0.02	0.05	0.03	
T-E ratio	11.65	10.80	9.27	7.47	5.26	3.74	3.51	4.72	6.52	8.60	9.99	11.43	
Precipitation-effectiveness:	3.83					Temperature-efficiency							92.97
Moisture Index [MI=100*(P-PE)/PE]	-86.83												
+ E.Dry (-110<MI<-66.7)													
Index of dryness [DI=100*d/PE]	86.82												
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE]	0.00												
+ No surplus (0<HI<10)													
Potential Evapotranspiration PE	888.18												
+ Third mesothermic (855<PE<997)													

