

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

S.Rivas-Martinez(+) & S.Rivas-Saenz

(Adapted to Synoptical Table 14/02/2020)

ARTIGAS (URUGUAY)

Altitude: 117 m.

Latitude: 30°24'S Longitude: 56°23'W

Temperature observation period.: 1981-1994 (14)

Rainfall observation period....: 1944-1994 (51)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	25.56	32.78	18.33	41.11	8.33	110.2	150.15
Feb.	25.28	32.22	18.33	40.00	8.89	97.8	125.99
Mar.	23.06	29.44	16.67	40.56	6.11	119.1	107.27
Apr.	18.89	25.00	12.78	36.11	2.22	128.3	63.71
May.	15.84	21.67	10.00	30.56	-1.11	105.4	42.91
Jun.	13.89	18.89	8.89	29.44	-4.44	104.4	30.23
Jul.	12.77	18.33	7.22	29.44	-3.89	70.1	26.92
Aug.	15.27	21.11	9.44	32.78	-3.89	75.7	41.51
Sep.	16.67	22.22	11.11	33.89	-1.11	101.9	51.82
Oct.	18.06	23.89	12.22	33.89	1.11	119.4	68.46
Nov.	21.67	28.89	14.44	39.44	5.56	97.3	101.48
Dec.	24.17	31.67	16.67	41.67	6.11	104.1	134.91
Year	19.26	25.51	13.01	35.74	1.99	1234	945.36

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	448
Compensated thermicity index.....(Itc):	448
Simple continentality index.....(Ic):	12.8
Diurnality index.....(Id):	15.0
Annual ombrothermic index.....(Io):	5.34
Monthly estival ombrothermic index.....(Ios1):	3.87
Bimonthly estival ombrothermic index.....(Ios2):	4.09
Threemonthly estival ombrothermic index.....(Ios3):	4.16
Fourmonthly estival ombrothermic index.....(Ios4):	4.23
Annual ombro-evaporation index.....(Ioe):	1.31
Annual positive temperature.....(Tp):	2311
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	750
Positive precipitation.....(Pp):	1234

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

Latitudinal Belt...: Subtropical

Continentality.....: Oceanic - Low Semihyperoceanic

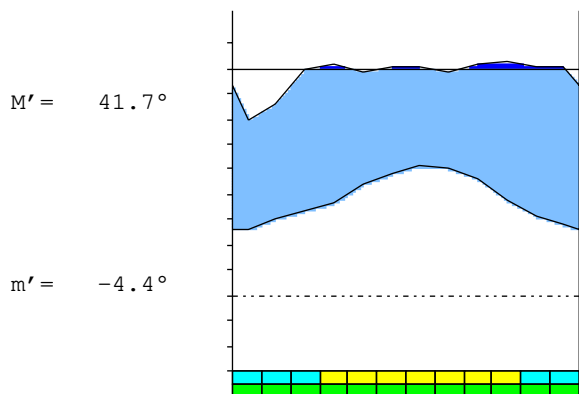
Bioclimate.....: TEMPERATE OCEANIC

Bioclimatic Belt...: INFRATEMPERATE UPPER SUBHUMID

ARTIGAS (URUGUAY)

117 m

P= 1234      30° 24'S      56° 23'W      14/51 y.  
 T= 19.3 °      Ic= 12.8      Tp= 2311      Tn= 0  
 m= 7.2 °      M= 18.3 °      Itc= 448      Io= 5.3



TEMPERATE OCEANIC  
 INFRATEMPERATE UPPER SUBHUMID

WATER INDEX CARD      ARTIGAS (URUGUAY)  
 Altitude: 117 m.      Latitude: 30° 24'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	12.8	27	70	0	100	27	0	43	45	1.6
Aug.	15.3	42	76	0	100	42	0	34	40	0.8
Sep.	16.7	52	102	0	100	52	0	50	45	0.9
Oct.	18.1	68	119	0	100	68	0	51	48	0.7
Nov.	21.7	101	97	-4	96	101	0	0	24	0.0
Dec.	24.2	135	104	-31	65	135	0	0	12	-0.2
Jan.	25.6	150	110	-40	25	150	0	0	6	-0.2
Feb.	25.3	126	98	-25	0	123	3	0	3	-0.2
Mar.	23.1	107	119	12	12	107	0	0	1	0.1
Apr.	18.9	64	128	65	76	64	0	0	1	1.0
May.	15.8	43	105	24	100	43	0	39	20	1.4
Jun.	13.9	30	104	0	100	30	0	74	47	2.4
Year	19.3	945	1234	*	*	942	3	291	291	*

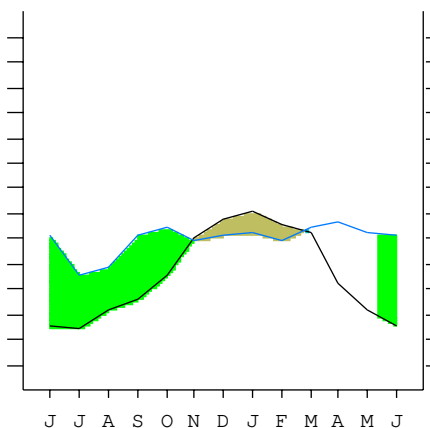
R = Reserve      VR = Variation of the reserve      RE = Real evapotranspiration  
 DR = Drainage      HC = Humidity coefficient      DF = Deficit      SP = Superavit

ARTIGAS (URUGUAY)

30°24'S      56°23'W      117 m 14/51 y.

T= 19.3      Ic= 12.8      TEMPERATE OCEANIC  
 m= 7.2      Tp= 2311      INFRATEMPERATE  
 M= 18.3      Tn= 0      UPPER SUBHUMID  
 M' = 41.7      Itc= 448  
 m' = -4.4      Io= 5.3  
 P= 1234      mm ———  
 PE= 945      mm ———

Imbibing	22 Feb.
Saturation	12 May.
Reserve Use	28 Oct.
Deficit	27 Feb.



ARTIGAS (URUGUAY)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B1b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semihyperoceanic  
 + Variant .....: b. Low  
 Thermic types [A3.A2]  
 + Latitudinal zone ....: A. Warm  
 + Latitudinal belt ....: 3. Subtropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm  
 Bioclimatic types [C3.1.6a]  
 + Macrobioclimate .....: C. TEMPERATE  
 + Bioclimate .....: 3. OCEANIC  
 + Bioclimatic variant .:  
 + Thermic type.....: 1. INFRA TEMPERATE  
 + Thermic subtype.....:  
 + Ombrothermic type ...: 6. SUBHUMID  
 + Ombrothermic subtype : a. UPPER  
 Bioclimatic Classification .....Teoc.Ite.Shu.Seo

ARTIGAS (URUGUAY)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 657  
 Coldest semester of the year.....(Psw): 577  
 Warmest four months period of the year.....(Pcm1): 431  
 Following warmest four months period.....(Pcm2): 408  
 Positive precipitation dryest 3 months.....(Ppd): 248  
 Positive precipitation dryest 2 months.....(Ppd2): 146  
 Positive precipitation dryest 1 month.....(Ppd1): 70  
 Positive precipitation warmest 3 months.....(Pps): 312  
 Positive precipitation warmest 2 months.....(Pps2): 208  
 Positive precipitation warmest 1 month.....(Pps1): 110  
 Positive precipitation coldest 3 months.....(Ppw): 250  
 Positive precipitation coldest 2 months.....(Ppw2): 175  
 Positive precipitation coldest 1 month.....(Ppw1): 70

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	250	318	312	352

Seasonal rainfall rhythms: F > P > S > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.6  
 Average coldest month [T].....(Tmin): 12.8  
 Maximum temp. warmest month [M].....(Tmax): 32.8  
 Minimum temp. coldest month [m].....(Tmin): 7.2  
 Absolute Max.temp. warmest month [M'].....(Tamax): 41.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): -4.4  
 First warmest contrasted month [M].....(Tcmax): 31.7 (12)  
 First coldest contrasted month [m].....(Tcmin): 16.7 (12)  
 Estival temperature.....(Ts): 750  
 Positive temperature dryest 3 months.....(Tpd): 447  
 Positive temperature dryest 2 months.....(Tpd2): 280  
 Positive temperature dryest 1 month.....(Tpd1): 128  
 Positive temperature warmest 3 months.....(Tps): 750  
 Positive temperature warmest 2 months.....(Tps2): 508  
 Positive temperature warmest 1 month.....(Tps1): 256  
 Positive temperature coldest 3 months.....(Tpw): 419  
 Positive temperature coldest 2 months.....(Tpw2): 267  
 Positive temperature coldest 1 month.....(Tpw1): 128

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

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## OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.77  
Mediterranean index of January.....(Im1): 1.36  
Mediterranean index of January & February....(Im2): 1.33  
Mediterranean index of December to February...(Im3): 1.32

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1041	1102	978	1191	1283	1054	1044	701	757	1019	1194	973
Tp	242	256	253	231	189	158	139	128	153	167	181	217
Io (Iom)	4.31	4.31	3.87	5.16	6.79	6.65	7.52	5.49	4.96	6.11	6.61	4.49
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	3121 / 750			3528 / 578			2502 / 419			3186 / 564		
Io (Iot)	4.161			6.105			5.967			5.649		
Semesters	December-May						June-November					
Pp(x10)/Tp	6649 / 1328						5688 / 983					
Io (Iosm)	5.007						5.785					

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## Aridity Value Index (AVI)

[10xPP/TP=IO]: 12337/2311=5.34 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1041	1102	978	1191	1283	1054	1044	701	757	1019	1194	973
Tp [T*10]	242	256	253	231	189	158	139	128	153	167	181	217
Iom [Pp/Tp]	431	431	387	516	679	665	752	549	496	611	661	449
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	3121 / 750			3528 / 578			2502 / 419			3186 / 564		
Iot [Pp/Tp]	416			610			597			565		
Avs E[Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 12.79  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 22.57  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 19.55  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.15  
 + Subcontinental (1.1<CI<1.7)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 64.05  
 + Temperate warm (100>R>60)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 42.16  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmmax<sup>2</sup>-Tmmin<sup>2</sup>)] .....: 120.67  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 1.56  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 1.31  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 13.34  
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....: 7. Mesoaxeric (Axeric temperate)  
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.41	0.36	0.47	0.57	0.49	0.52	0.34	0.35	0.46	0.53	0.39	0.39
T-E ratio	11.50	11.38	10.38	8.50	7.13	6.25	5.75	6.87	7.50	8.13	9.75	10.88
Precipitation-effectiveness: 52.80						Temperature-efficiency .....: 104.01						
Moisture Index [MI=100*(P-PE)/PE] .....: 30.50 + B1.Humid low-humid (20<MI<40)												
Index of dryness [DI=100*d/PE] .....: 0.33 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....: 30.82 + Strong surplus (20<HI)												
Potential Evapotranspiration PE .....: 945.36 + Third mesothermic (855<PE<997)												

