

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

GUAIRA (BRAZIL)

Altitude: 230 m.

Latitude: 24°5'S Longitude: 54°15'W

Temperature observation period.: 1963-1990 (28)

Rainfall observation period....: 1963-1990 (28)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	24.70	30.60	20.30	37.90	10.70	176.0	132.55
Feb.	24.40	31.30	21.20	38.30	11.40	148.0	112.06
Mar.	24.60	31.00	19.90	37.20	7.30	125.0	118.81
Apr.	21.90	28.40	17.10	35.40	3.10	130.0	82.07
May.	18.60	25.10	14.10	32.70	-0.40	169.0	54.20
Jun.	16.70	22.80	12.00	31.40	-3.20	110.0	39.57
Jul.	16.80	23.90	11.50	32.50	-4.10	62.0	41.95
Aug.	18.40	25.10	13.20	35.40	-5.30	79.0	55.61
Sep.	19.80	26.20	18.60	38.40	-0.80	119.0	67.04
Oct.	22.10	28.50	17.00	37.40	5.20	176.0	96.12
Nov.	23.80	30.20	18.60	41.60	6.60	154.0	115.98
Dec.	25.00	31.10	20.30	40.20	8.80	190.0	138.82
Year	21.40	27.85	16.98	36.53	3.27	1638	1054.8

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	562
Compensated thermicity index.....(Itc):	562
Simple continentality index.....(Ic):	8.3
Diurnality index.....(Id):	12.4
Annual ombrothermic index.....(Io):	6.38
Monthly dry ombrothermic index.....(Iod1):	3.69
Bimonthly dry ombrothermic index.....(Iod2):	4.01
Threemonthly dry ombrothermic index.....(Iod3):	4.84
Fourmonthly dry ombrothermic index.....(Iod4):	5.96
Annual ombro-evaporation index.....(Ioe):	1.55
Annual positive temperature.....(Tp):	2568
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	519
Positive precipitation.....(Pp):	1638

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

Latitudinal Belt...: Subtropical

Continentality.....: Hyperoceanic - High Subhyperoceanic

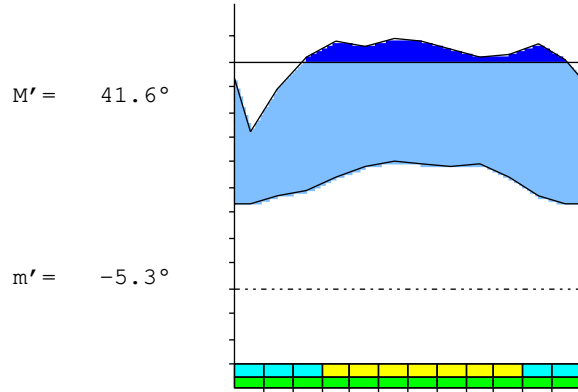
Bioclimate(Variant): TROPICAL PLUVIAL (HYGROPHYTIC)

Bioclimatic Belt...: UPPER THERMOTROPICAL LOW HUMID

GUAIRA (BRAZIL)

230 m

P= 1638 24° 5'S 54° 15'W 28/28 y.
 T= 21.4 ° Ic= 8.3 Tp= 2568 Tn= 0
 m= 12.0 ° M= 22.8 ° Itc= 562 Io= 6.4



TROPICAL PLUVIAL (HYGROPHYTIC)
 UPPER THERMOTROPICAL LOW HUMID

WATER INDEX CARD GUAIRA (BRAZIL)
 Altitude: 230 m. Latitude: 24° 5'S

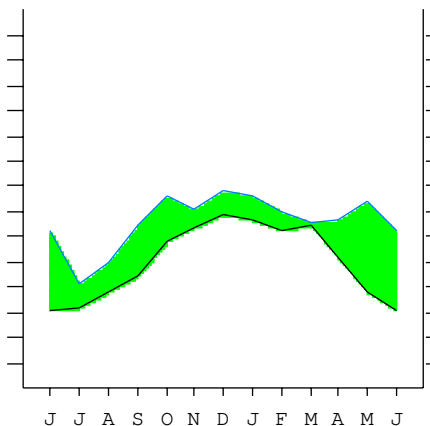
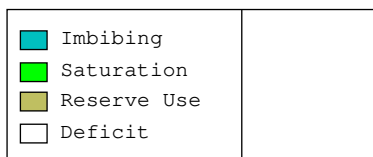
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	16.8	42	62	0	100	42	0	20	46	0.4
Aug.	18.4	56	79	0	100	56	0	23	35	0.4
Sep.	19.8	67	119	0	100	67	0	52	43	0.7
Oct.	22.1	96	176	0	100	96	0	80	62	0.8
Nov.	23.8	116	154	0	100	116	0	38	50	0.3
Dec.	25.0	139	190	0	100	139	0	51	51	0.3
Jan.	24.7	133	176	0	100	133	0	43	47	0.3
Feb.	24.4	112	148	0	100	112	0	36	41	0.3
Mar.	24.6	119	125	0	100	119	0	6	24	0.0
Apr.	21.9	82	130	0	100	82	0	48	36	0.5
May.	18.6	54	169	0	100	54	0	115	75	2.1
Jun.	16.7	40	110	0	100	40	0	70	73	1.7
Year	21.4	1055	1638	*	*	1055	0	583	583	*

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

GUAIRA (BRAZIL)

24°5'S 54°15'W 230 m 28/28 y.

T= 21.4 Ic= 8.3 TROPICAL PLUVIAL (HYGROPHYTIC)
 m= 12.0 Tp= 2568 UPPER THERMOTROPICAL
 M= 22.8 Tn= 0 LOW HUMID
 M' = 41.6 Itc= 562
 m' = -5.3 Io= 6.4
 P= 1638 mm ———
 PE= 1055 mm ———



All over the year,
 there is no hydric deficit

GUAIRA (BRAZIL)

Latitude: 24°5'S Longitude: 54°15'W Altitude: 230 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [A3a]
 + Type: A. Hyperoceanic
 + Subtype: 3. Subhyperoceanic
 + Variant: a. High
 Thermic types [A3.A2]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 2. Warm
 Bioclimatic types [A5.2a.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 5. PLUVIAL
 + Bioclimatic variant .: HYGROPHYTIC
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic ClassificationTrpl(Hig).Ttr.Hum.Sho

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 969
 Coldest semester of the year.....(Psw): 669
 Warmest four months period of the year.....(Pcm1): 639
 Following warmest four months period.....(Pcm2): 471
 Positive precipitation dryest 3 months.....(Ppd): 251
 Positive precipitation dryest 2 months.....(Ppd2): 141
 Positive precipitation dryest 1 month.....(Ppd1): 62
 Positive precipitation warmest 3 months.....(Pps): 514
 Positive precipitation warmest 2 months.....(Pps2): 366
 Positive precipitation warmest 1 month.....(Pps1): 190
 Positive precipitation coldest 3 months.....(Ppw): 251
 Positive precipitation coldest 2 months.....(Ppw2): 172
 Positive precipitation coldest 1 month.....(Ppw1): 110

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	251	449	514	424

Seasonal rainfall rhythms: S > P > F > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.0
 Average coldest month [T].....(Tmin): 16.7
 Maximum temp. warmest month [M].....(Tmmax): 31.3
 Minimum temp. coldest month [m].....(Tmmin): 11.5
 Absolute Max.temp. warmest month [M'].....(Tamax): 41.6
 Absolute Min.temp. coldest month [m'].....(Tamin): -5.3
 First warmest contrasted month [M].....(Tcmax): 23.9 (7)
 First coldest contrasted month [m].....(Tcmin): 11.5 (7)
 Dry station temperature.....(Td): 519
 Positive temperature dryest 3 months.....(Tpd): 519
 Positive temperature dryest 2 months.....(Tpd2): 352
 Positive temperature dryest 1 month.....(Tpd1): 168
 Positive temperature warmest 3 months.....(Tps): 741
 Positive temperature warmest 2 months.....(Tps2): 497
 Positive temperature warmest 1 month.....(Tps1): 250
 Positive temperature coldest 3 months.....(Tpw): 519
 Positive temperature coldest 2 months.....(Tpw2): 335
 Positive temperature coldest 1 month.....(Tpw1): 167

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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): 0.64
 Mediterranean index of January.....(Im1): 0.75
 Mediterranean index of January & February.....(Im2): 0.75
 Mediterranean index of December to February...(Im3): 0.75

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1900	1760	1480	1250	1300	1690	1100	620	790	1190	1760	1540
Tp	250	247	244	246	219	186	167	168	184	198	221	238
Io (Iom)	7.60	7.13	6.07	5.08	5.94	9.09	6.59	3.69	4.29	6.01	7.96	6.47
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	5140 / 741			4240 / 651			2510 / 519			4490 / 657		
Io (Iot)	6.937			6.513			4.836			6.834		
Semesters	December-May						June-November					
Pp(x10)/Tp	9380 / 1392						7000 / 1176					
Io (Iosm)	6.739						5.952					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 16380/2568=6.38 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1900	1760	1480	1250	1300	1690	1100	620	790	1190	1760	1540
TP [T*10]	250	247	244	246	219	186	167	168	184	198	221	238
Iom [Pp/TP]	760	713	607	508	594	909	659	369	429	601	796	647
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	5140 / 741			4240 / 651			2510 / 519			4490 / 657		
Iot [Pp/TP]	694			651			484			683		
Avs E [Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 8.30
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 14.18
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 11.18
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.92
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 76.54
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 52.17
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)]: 193.29
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.31
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.55
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 22.04
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 6. Termoaxeric (Axeric warm)
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.70	0.58	0.48	0.53	0.77	0.51	0.27	0.33	0.51	0.74	0.61	0.75
T-E ratio	11.12	10.98	11.07	9.85	8.37	7.52	7.56	8.28	8.91	9.95	10.71	11.25
Precipitation-effectiveness: 67.78						Temperature-efficiency: 115.56						
Moisture Index [MI=100*(P-PE)/PE]: 55.29 + B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE]: 0.00 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 55.29 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1054.77 + Forth mesothermic (997<PE<1440)												

