

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

MARABA (BRAZIL)

Altitude: 95 m.

Latitude: 5°21'S Longitude: 49°9'W

Temperature observation period.: 1973-1990 (18)

Rainfall observation period....: 1973-1990 (18)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	25.80	30.50	22.30	34.80	16.70	294.0	128.82
Feb.	24.30	30.50	22.20	34.70	17.10	357.0	93.02
Mar.	25.80	30.80	22.50	34.30	17.80	387.0	126.39
Apr.	26.20	31.30	22.60	35.00	18.00	299.0	128.47
May.	26.50	31.90	22.50	35.50	18.70	89.0	136.53
Jun.	26.40	32.30	21.60	35.80	17.70	34.0	130.72
Jul.	26.30	32.80	21.10	37.70	17.10	21.0	132.85
Aug.	26.80	33.40	21.50	37.00	16.00	22.0	142.04
Sep.	26.90	32.70	22.40	38.10	21.00	28.0	138.70
Oct.	26.70	32.00	22.40	35.70	21.60	28.0	143.96
Nov.	26.40	31.40	22.40	35.50	21.40	30.0	136.00
Dec.	25.90	30.80	22.20	36.10	20.10	92.0	130.63
Year	26.17	31.70	22.14	35.85	18.60	1681	1568.1

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	789
Compensated thermicity index.....(Itc):	789
Simple continentality index.....(Ic):	2.6
Diurnality index.....(Id):	11.9
Annual ombrothermic index.....(Io):	5.35
Monthly dry ombrothermic index.....(Iod1):	0.80
Bimonthly dry ombrothermic index.....(Iod2):	0.81
Three monthly dry ombrothermic index.....(Iod3):	0.89
Four monthly dry ombrothermic index.....(Iod4):	0.99
Annual ombro-evaporation index.....(Ioe):	0.15
Annual positive temperature.....(Tp):	3140
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	800
Positive precipitation.....(Pp):	1681

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

Latitudinal Belt...: Equatorial

Continentalty.....: Hyperoceanic - Low Ultrahyperoceanic

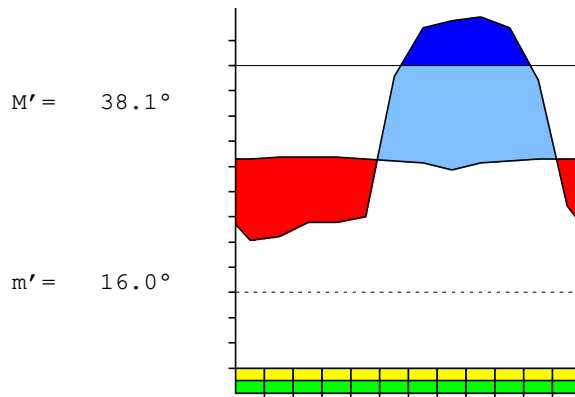
Bioclimate(Variant): TROPICAL PLUVISEASONAL (PLUVISEROTIN, SUBXEROPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL UPPER SUBHUMID

MARABA (BRAZIL)

95 m

P= 1681 5° 21'S 49° 9'W 18/18 y.
 T= 26.2° Ic= 2.6 Tp= 3140 Tn= 0
 m= 22.2° M= 30.5° Itc= 789 Io= 5.4



TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 UPPER INFRATROPICAL UPPER SUBHUMID

WATER INDEX CARD

MARABA (BRAZIL)

Altitude: 95 m.

Latitude: 5° 21'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	26.3	133	21	0	0	21	112	0	23	-0.8
Aug.	26.8	142	22	0	0	22	120	0	12	-0.8
Sep.	26.9	139	28	0	0	28	111	0	6	-0.7
Oct.	26.7	144	28	0	0	28	116	0	3	-0.8
Nov.	26.4	136	30	0	0	30	106	0	1	-0.7
Dec.	25.9	131	92	0	0	92	39	0	1	-0.2
Jan.	25.8	129	294	100	100	129	0	65	33	1.2
Feb.	24.3	93	357	0	100	93	0	264	148	2.8
Mar.	25.8	126	387	0	100	126	0	261	205	2.0
Apr.	26.2	128	299	0	100	128	0	171	188	1.3
May.	26.5	137	89	-48	52	137	0	0	94	-0.3
Jun.	26.4	131	34	-52	0	86	44	0	47	-0.7
Year	26.2	1568	1681	*	*	921	647	760	760	*

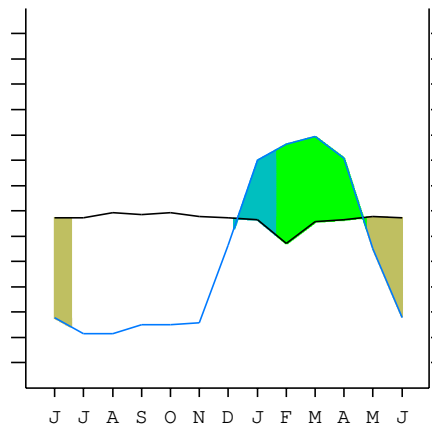
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

MARABA (BRAZIL)

5°21'S 49°9'W 95 m 18/18 y.

T= 26.2 Ic= 2.6 TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 m= 22.2 Tp= 3140 UPPER INFRATROPICAL
 M= 30.5 Tn= 0 UPPER SUBHUMID
 M' = 38.1 Itc= 789
 m' = 16.0 Io= 5.4
 P= 1681 mm ———
 PE= 1568 mm ———

Imbibing	6 Dec.
Saturation	19 Jan.
Reserve Use	24 Apr.
Deficit	17 Jun.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A1b]
 + Type: A. Hyperoceanic
 + Subtype: 1. Ultrahyperoceanic
 + Variant: b. Low
 Thermic types [A1.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 1. Equatorial
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid
 Bioclimatic types [A4e.1a.6a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant ..: e. PLUVISEROTIN, SUBXEROPHYTIC
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic Classification: Trde(Pse).Itr.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 222
 Coldest semester of the year.....(Psw): 1459
 Warmest four months period of the year.....(Pcm1): 108
 Following warmest four months period.....(Pcm2): 1130
 Positive precipitation dryest 3 months.....(Ppd): 71
 Positive precipitation dryest 2 months.....(Ppd2): 43
 Positive precipitation dryest 1 month.....(Ppd1): 21
 Positive precipitation warmest 3 months.....(Pps): 78
 Positive precipitation warmest 2 months.....(Pps2): 50
 Positive precipitation warmest 1 month.....(Pps1): 28
 Positive precipitation coldest 3 months.....(Ppw): 1038
 Positive precipitation coldest 2 months.....(Ppw2): 651
 Positive precipitation coldest 1 month.....(Ppw1): 357

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	77	86	743	775

Tropical rainfall rhythms: 2 > 1 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.9
 Average coldest month [T].....(Tmin): 24.3
 Maximum temp. warmest month [M].....(Tmmax): 33.4
 Minimum temp. coldest month [m].....(Tmmin): 21.1
 Absolute Max.temp. warmest month [M'].....(Tamax): 38.1
 Absolute Min.temp. coldest month [m'].....(Tamin): 16.0
 First warmest contrasted month [M].....(Tcmax): 33.4 (8)
 First coldest contrasted month [m].....(Tcmin): 21.5 (8)
 Dry station temperature.....(Td): 800
 Positive temperature dryest 3 months.....(Tpd): 800
 Positive temperature dryest 2 months.....(Tpd2): 531
 Positive temperature dryest 1 month.....(Tpd1): 263
 Positive temperature warmest 3 months.....(Tps): 804
 Positive temperature warmest 2 months.....(Tps2): 537
 Positive temperature warmest 1 month.....(Tps1): 269
 Positive temperature coldest 3 months.....(Tpw): 759
 Positive temperature coldest 2 months.....(Tpw2): 501
 Positive temperature coldest 1 month.....(Tpw1): 243

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.93
 Mediterranean index of January.....(Im1): No
 Mediterranean index of January & February.....(Im2): No
 Mediterranean index of December to February...(Im3): No

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	920	2940	3570	3870	2990	890	340	210	220	280	280	300
Tp	259	258	243	258	262	265	264	263	268	269	267	264
Io (Iom)	3.55	11.4	14.7	15.0	11.4	3.36	1.29	0.80	0.82	1.04	1.05	1.14
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	7430 / 760			7750 / 785			770 / 795			860 / 800		
Io (Iot)	9.776			9.873			0.969			1.075		
Semesters	December-May						June-November					
Pp(x10)/Tp	15180 / 1545						1630 / 1595					
Io (Iosm)	9.825						1.022					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 16810/3140=5.35 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	920	2940	3570	3870	2990	890	340	210	220	280	280	300
Tp [T*10]	259	258	243	258	262	265	264	263	268	269	267	264
Iom [Pp/Tp]	355	\$\$	\$\$	\$\$	\$\$	336	129	80	82	104	105	114
Avm [200-Iom]	***	***	***	***	***	***	71	120	118	96	95	86
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	7430 / 760			7750 / 785			770 / 795			860 / 800		
Iot [Pp/Tp]	978			987			97			108		
Avs E[Avm<200]	***			***			309			277		
Strong upper arid [1]							Weak upper arid [2]					
Strong lower semiarid [4]							Weak lower semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 2.60
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 27.00
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 2.70
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.93
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 64.24
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 46.48
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 250.76
 + 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]: 1.07
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 89.10
 + Low (60<K<90)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 3. Termoxeroteric (Mediterranean warm)
 + Thermic type: 1. Megathermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.20	1.54	1.63	1.21	0.31	0.11	0.06	0.07	0.09	0.09	0.09	0.33
T-E ratio	11.61	10.93	11.61	11.79	11.92	11.88	11.83	12.06	12.10	12.02	11.88	11.65
Precipitation-effectiveness:	67.30					Temperature-efficiency: 141.30						
Moisture Index [MI=100*(P-PE)/PE]: 7.20 + C2.Subhumid humid (0<MI<20)												
Index of dryness [DI=100*d/PE]: 41.28 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]: 48.48 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1568.13 + Megathermic (PE>1440)												

