

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

BARRA (BRAZIL)

Altitude: 402 m.

Latitude: 10°5'S Longitude: 43°10'W

Temperature observation period.: 1961-1990 (30)

Rainfall observation period....: 1961-1990 (30)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	26.10	33.90	19.20	38.30	13.60	12.0	138.31
Feb.	27.20	34.00	21.20	39.70	12.90	40.0	136.87
Mar.	27.00	33.30	21.30	39.10	13.90	82.0	146.48
Apr.	26.40	32.40	21.10	39.90	13.50	141.0	131.79
May.	25.90	31.30	20.80	37.00	13.20	106.0	126.02
Jun.	26.40	32.00	21.30	37.80	14.90	98.0	127.79
Jul.	25.50	31.40	20.80	37.30	13.00	106.0	118.36
Aug.	25.20	31.20	20.30	36.30	13.10	64.0	115.99
Sep.	24.40	31.50	18.00	35.80	11.30	7.0	101.94
Oct.	23.30	30.90	16.10	35.30	11.20	3.0	92.43
Nov.	23.60	31.40	15.80	35.50	10.40	1.0	95.61
Dec.	24.60	32.70	16.80	36.30	10.20	1.0	115.28
Year	25.47	32.17	19.39	37.36	12.60	661	1446.9

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	725
Compensated thermicity index.....(Itc):	725
Simple continentality index.....(Ic):	3.9
Diurnality index.....(Id):	15.9
Annual ombrothermic index.....(Io):	2.16
Monthly dry ombrothermic index.....(Iod1):	0.04
Bimonthly dry ombrothermic index.....(Iod2):	0.04
Three monthly dry ombrothermic index.....(Iod3):	0.07
Four monthly dry ombrothermic index.....(Iod4):	0.13
Annual ombro-evaporation index.....(Ioe):	2.63
Annual positive temperature.....(Tp):	3056
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	715
Positive precipitation.....(Pp):	661

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	3	3	1	5	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - Low Ultrahyperoceanic

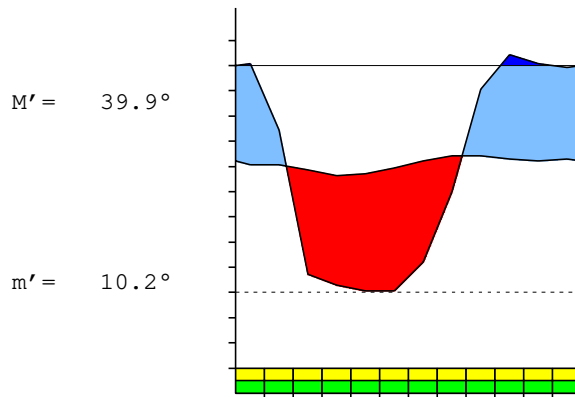
Bioclimate(Variant): TROPICAL XERIC (PLUVISEROTIN, DRY)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW DRY

BARRA (BRAZIL)

402 m

P= 661 10° 5'S 43° 10'W 30/30 y.
 T= 25.5° Ic= 3.9 Tp= 3056 Tn= 0
 m= 16.1° M= 30.9° Itc= 725 Io= 2.2



TROPICAL XERIC (PLUVISEROTIN)
 UPPER INFRATROPICAL LOW DRY

WATER INDEX CARD

BARRA (BRAZIL)

Altitude: 402 m.

Latitude: 10° 5'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	25.5	118	106	0	0	106	12	0	0	-0.1
Aug.	25.2	116	64	0	0	64	52	0	0	-0.4
Sep.	24.4	102	7	0	0	7	95	0	0	-0.9
Oct.	23.3	92	3	0	0	3	89	0	0	-0.9
Nov.	23.6	96	1	0	0	1	95	0	0	-0.9
Dec.	24.6	115	1	0	0	1	114	0	0	-0.9
Jan.	26.1	138	12	0	0	12	126	0	0	-0.9
Feb.	27.2	137	40	0	0	40	97	0	0	-0.7
Mar.	27.0	146	82	0	0	82	64	0	0	-0.4
Apr.	26.4	132	141	9	9	132	0	0	0	0.0
May.	25.9	126	106	-9	0	115	11	0	0	-0.1
Jun.	26.4	128	98	0	0	98	30	0	0	-0.2
Year	25.5	1447	661	*	*	661	786	0	0	*

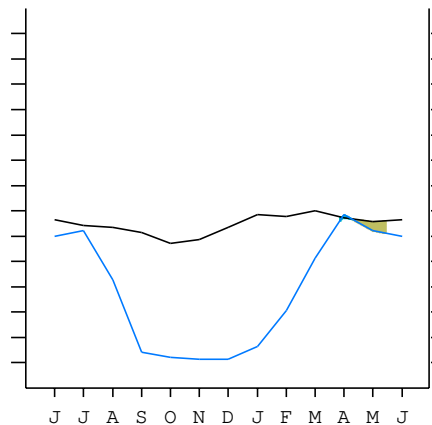
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

BARRA (BRAZIL)

10°5'S 43°10'W 402 m 30/30 y.

T= 25.5 Ic= 3.9 TROPICAL XERIC (PLUVISEROTIN)
 m= 16.1 Tp= 3056 UPPER INFRATROPICAL
 M= 30.9 Tn= 0 LOW DRY
 M' = 39.9 Itc= 725
 m' = 10.2 Io= 2.2
 P= 661 mm ———
 PE= 1447 mm ———

Imbibing	27 Mar.
Saturation	10 Apr.
Reserve Use	14 May.
Deficit	



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A1b]
 + Type: A. Hyperoceanic
 + Subtype: 1. Ultrahyperoceanic
 + Variant: b. Low

Thermic types [A2.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 2. Eutropical
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid

Bioclimatic types [A3e.1a.5b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 3. XERIC
 + Bioclimatic variant .: e. PLUVISEROTIN, DRY
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 5. DRY
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Trxe (Pse).Itr.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 479
 Coldest semester of the year.....(Psw): 182
 Warmest four months period of the year.....(Pcm1): 275
 Following warmest four months period.....(Pcm2): 374
 Positive precipitation dryest 3 months.....(Ppd): 5
 Positive precipitation dryest 2 months.....(Ppd2): 2
 Positive precipitation dryest 1 month.....(Ppd1): 1
 Positive precipitation warmest 3 months.....(Pps): 263
 Positive precipitation warmest 2 months.....(Pps2): 122
 Positive precipitation warmest 1 month.....(Pps1): 40
 Positive precipitation coldest 3 months.....(Ppw): 11
 Positive precipitation coldest 2 months.....(Ppw2): 4
 Positive precipitation coldest 1 month.....(Ppw1): 3

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	268	11	53	329

Tropical rainfall rhythms: 2 > 3 > 1 > 4

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.2
 Average coldest month [T].....(Tmin): 23.3
 Maximum temp. warmest month [M].....(Tmmax): 34.0
 Minimum temp. coldest month [m].....(Tmmin): 15.8
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.9
 Absolute Min.temp. coldest month [m'].....(Tamin): 10.2
 First warmest contrasted month [M].....(Tcmax): 32.7 (12)
 First coldest contrasted month [m].....(Tcmin): 16.8 (12)
 Dry station temperature.....(Td): 715
 Positive temperature dryest 3 months.....(Tpd): 715
 Positive temperature dryest 2 months.....(Tpd2): 482
 Positive temperature dryest 1 month.....(Tpd1): 236
 Positive temperature warmest 3 months.....(Tps): 806
 Positive temperature warmest 2 months.....(Tps2): 542
 Positive temperature warmest 1 month.....(Tps1): 272
 Positive temperature coldest 3 months.....(Tpw): 713
 Positive temperature coldest 2 months.....(Tpw2): 469
 Positive temperature coldest 1 month.....(Tpw1): 233

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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): 2.19
 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)	10	120	400	820	1410	1060	980	1060	640	70	30	10
Tp	246	261	272	270	264	259	264	255	252	244	233	236
Io (Iom)	0.04	0.46	1.47	3.04	5.34	4.09	3.71	4.16	2.54	0.29	0.13	0.04
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	530 / 779			3290 / 793			2680 / 771			110 / 713		
Io (Iot)	0.680			4.149			3.476			0.154		
Semesters	December-May						June-November					
Pp(x10)/Tp	3820 / 1572						2790 / 1484					
Io (Iosm)	2.430						1.880					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 6610/3056=2.16 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	10	120	400	820	1410	1060	980	1060	640	70	30	10
Tp [T*10]	246	261	272	270	264	259	264	255	252	244	233	236
Iom [Pp/Tp]	4	46	147	304	534	409	371	416	254	29	13	4
Avm [200-Iom]	196	154	53	***	***	***	***	***	***	171	187	196
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	530 / 779			3290 / 793			2680 / 771			110 / 713		
Iot [Pp/Tp]	68			415			348			15		
Avs E[Avm<200]	403			***			***			554		
Lower ultrahyperarid [2]						Upper ultrahyperarid [2]						
Lower hyperarid [1]						Strong lower arid [1]						
Weak lower arid [1]						Weak lower semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	3.90
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		17.47
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		5.31
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.89
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		25.96
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		18.64
+ Semiarid -mediterranean- (20>Ia>15)		
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]		72.93
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		3.85
+ Arid (6>DR>3)		
Aridity Index of UNEP [I=P/PE]		0.46
+ Semiarid (0.5>Im>0.2)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		30.08
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 1. Megathermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.03	0.13	0.28	0.52	0.39	0.35	0.39	0.22	0.02	0.01	0.00	0.00
T-E ratio	11.75	12.24	12.15	11.88	11.65	11.88	11.48	11.34	10.98	10.48	10.62	11.07
Precipitation-effectiveness: 23.47						Temperature-efficiency						137.52
Moisture Index [MI=100*(P-PE)/PE]												-54.31
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												54.31
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												1446.86
+ Megathermic (PE>1440)												

