

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

COXIM (BRAZIL)

Altitude: 287 m.

Latitude: 18°30'S Longitude: 54°46'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.	26.00	32.00	22.20	39.40	16.00	249.0	145.71
Feb.	25.70	32.30	21.90	36.60	18.10	208.0	122.06
Mar.	25.70	32.30	21.70	37.60	12.20	158.0	129.46
Apr.	25.00	30.10	20.30	36.50	12.70	111.0	109.78
May.	22.80	30.10	17.40	36.40	0.70	82.0	81.66
Jun.	21.20	29.50	14.90	34.20	0.40	26.0	62.45
Jul.	20.60	30.20	14.90	35.00	-3.70	25.0	58.99
Aug.	22.80	30.60	15.90	38.40	0.20	47.0	85.06
Sep.	24.70	32.70	18.70	41.40	9.40	55.0	109.02
Oct.	26.30	33.70	20.80	39.40	12.80	114.0	144.36
Nov.	26.40	33.00	21.60	40.40	12.20	173.0	146.07
Dec.	26.20	32.00	22.10	39.00	18.20	245.0	149.21
Year	24.45	31.54	19.37	37.86	9.10	1493	1343.8

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	696
Compensated thermicity index.....(Itc):	696
Simple continentality index.....(Ic):	5.8
Diurnality index.....(Id):	15.3
Annual ombrothermic index.....(Io):	5.09
Monthly dry ombrothermic index.....(Iod1):	1.21
Bimonthly dry ombrothermic index.....(Iod2):	1.22
Three-monthly dry ombrothermic index.....(Iod3):	1.52
Four-monthly dry ombrothermic index.....(Iod4):	2.06
Annual ombro-evaporation index.....(Ioe):	3.32
Annual positive temperature.....(Tp):	2934
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	646
Positive precipitation.....(Pp):	1493

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	3	2	0	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - High Euhyperoceanic

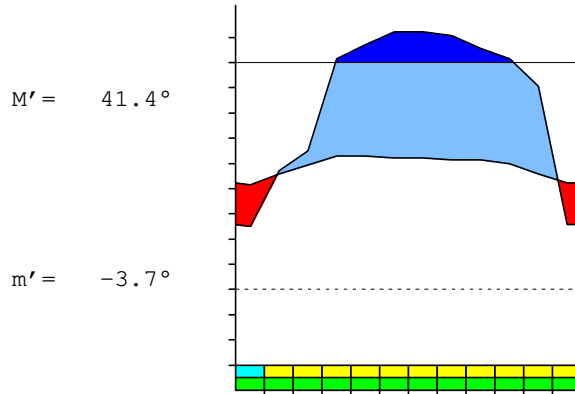
Bioclimate(Variant): TROPICAL PLUVISEASONAL (MESOPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL UPPER SUBHUMID

COXIM (BRAZIL)

287 m

P= 1493      18° 30'S      54° 46'W      18/18 y.  
 T= 24.5°      Ic= 5.8      Tp= 2934      Tn= 0  
 m= 14.9°      M= 30.2°      Itc= 696      Io= 5.1



TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 UPPER INFRATROPICAL UPPER SUBHUMID

WATER INDEX CARD  
 Altitude: 287 m.

COXIM (BRAZIL)  
 Latitude: 18° 30'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	20.6	59	25	-34	30	59	0	0	3	-0.5
Aug.	22.8	85	47	-30	0	77	9	0	2	-0.4
Sep.	24.7	109	55	0	0	55	54	0	1	-0.4
Oct.	26.3	144	114	0	0	114	30	0	0	-0.2
Nov.	26.4	146	173	27	27	146	0	0	0	0.1
Dec.	26.2	149	245	73	100	149	0	23	11	0.6
Jan.	26.0	146	249	0	100	146	0	103	57	0.7
Feb.	25.7	122	208	0	100	122	0	86	72	0.7
Mar.	25.7	129	158	0	100	129	0	29	50	0.2
Apr.	25.0	110	111	0	100	110	0	1	26	0.0
May.	22.8	82	82	0	100	82	0	0	13	0.0
Jun.	21.2	62	26	-36	64	62	0	0	7	-0.5
Year	24.5	1344	1493	*	*	1251	93	242	242	*

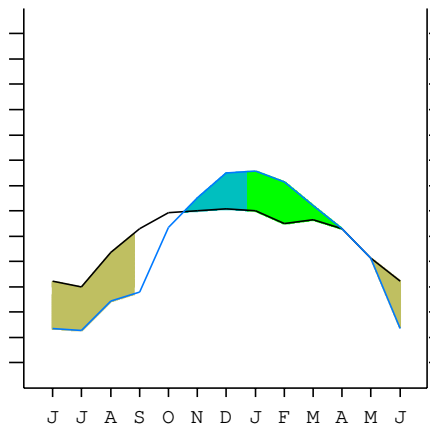
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

COXIM (BRAZIL)

18°30'S    54°46'W    287 m 18/18 y.

T= 24.5      Ic= 5.8      TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 m= 14.9      Tp= 2934      UPPER INFRATROPICAL  
 M= 30.2      Tn= 0      UPPER SUBHUMID  
 M' = 41.4      Itc= 696  
 m' = -3.7      Io= 5.1  
 P= 1493      mm    ———  
 PE= 1344      mm    ———

Imbibing	16 Oct.
Saturation	23 Dec.
Reserve Use	1 May.
Deficit	24 Aug.



COXIM (BRAZIL)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A2a]  
 + Type .....: A. Hyperoceanic  
 + Subtype .....: 2. Euhyperoceanic  
 + Variant .....: a. High

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

Bioclimatic types [A4.1a.6a]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 4. PLUVISEASONAL  
 + Bioclimatic variant ..:  
 + Thermic type.....: 1. INFRATROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 6. SUBHUMID  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Trde.Itr.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1147  
 Coldest semester of the year.....(Psw): 346  
 Warmest four months period of the year.....(Pcm1): 781  
 Following warmest four months period.....(Pcm2): 559  
 Positive precipitation dryest 3 months.....(Ppd): 98  
 Positive precipitation dryest 2 months.....(Ppd2): 51  
 Positive precipitation dryest 1 month.....(Ppd1): 25  
 Positive precipitation warmest 3 months.....(Pps): 532  
 Positive precipitation warmest 2 months.....(Pps2): 287  
 Positive precipitation warmest 1 month.....(Pps1): 173  
 Positive precipitation coldest 3 months.....(Ppw): 133  
 Positive precipitation coldest 2 months.....(Ppw2): 51  
 Positive precipitation coldest 1 month.....(Ppw1): 25

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	98	342	702	351

Tropical rainfall rhythms: 1 > 2 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.4  
 Average coldest month [T].....(Tmin): 20.6  
 Maximum temp. warmest month [M].....(Tmmax): 33.7  
 Minimum temp. coldest month [m].....(Tmmin): 14.9  
 Absolute Max.temp. warmest month [M'].....(Tamax): 41.4  
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.7  
 First warmest contrasted month [M].....(Tcmax): 30.2 (7)  
 First coldest contrasted month [m].....(Tcmin): 14.9 (7)  
 Dry station temperature.....(Td): 646  
 Positive temperature dryest 3 months.....(Tpd): 646  
 Positive temperature dryest 2 months.....(Tpd2): 418  
 Positive temperature dryest 1 month.....(Tpd1): 206  
 Positive temperature warmest 3 months.....(Tps): 789  
 Positive temperature warmest 2 months.....(Tps2): 527  
 Positive temperature warmest 1 month.....(Tps1): 264  
 Positive temperature coldest 3 months.....(Tpw): 646  
 Positive temperature coldest 2 months.....(Tpw2): 418  
 Positive temperature coldest 1 month.....(Tpw1): 206

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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					
Agelid.....[m' > 0] (Pf)	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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.90  
 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)	2450	2490	2080	1580	1110	820	260	250	470	550	1140	1730
Tp	262	260	257	257	250	228	212	206	228	247	263	264
Io (Iom)	9.35	9.58	8.09	6.15	4.44	3.60	1.23	1.21	2.06	2.23	4.33	6.55
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	7020 / 779			3510 / 735			980 / 646			3420 / 774		
Io (Iot)	9.012			4.776			1.517			4.419		
Semesters	December-May						June-November					
Pp(x10)/Tp	10530 / 1514						4400 / 1420					
Io (Iosm)	6.955						3.099					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 14930/2934=5.09 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2450	2490	2080	1580	1110	820	260	250	470	550	1140	1730
Tp [T*10]	262	260	257	257	250	228	212	206	228	247	263	264
Iom [Pp/Tp]	935	958	809	615	444	360	123	121	206	223	433	655
Avm [200-Iom]	***	***	***	***	***	***	77	79	***	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	7020 / 779			3510 / 735			980 / 646			3420 / 774		
Iot [Pp/Tp]	901			478			152			442		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [2]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 5.80  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 10.67  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 6.66  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 0.81  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 61.06  
 + Temperate warm (100>R>60)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 43.34  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 163.41  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 1.64  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 1.11  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 41.53  
 + Very low (K<60)

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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	0.99	0.82	0.60	0.41	0.31	0.09	0.09	0.17	0.19	0.41	0.66	0.97
T-E ratio	11.70	11.57	11.57	11.25	10.26	9.54	9.27	10.26	11.12	11.83	11.88	11.79
Precipitation-effectiveness:	57.24					Temperature-efficiency .....: 132.03						
Moisture Index [MI=100*(P-PE)/PE] .....: 11.10 + C2.Subhumid humid (0<MI<20)												
Index of dryness [DI=100*d/PE] .....: 6.91 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....: 18.01 + Moderate surplus (10<HI<20)												
Potential Evapotranspiration PE .....: 1343.84 + Forth mesothermic (997<PE<1440)												

