

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

CORUMBA (BRAZIL)

Altitude: 138 m.

Latitude: 19°0'S Longitude: 57°39'W

Temperature observation period.: 1931-1960 (30)

Rainfall observation period....: 1931-1960 (30)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	27.10	33.40	22.50	0.00	15.10	170.0	159.95
Feb.	26.90	33.30	22.50	0.00	14.60	158.0	137.32
Mar.	26.40	32.80	22.00	0.00	14.60	119.0	140.21
Apr.	24.70	31.10	20.00	0.00	8.00	71.0	104.15
May.	23.10	29.30	18.50	0.00	5.40	62.0	82.77
Jun.	21.60	27.70	17.10	0.00	0.80	35.0	63.66
Jul.	21.40	28.00	16.20	0.00	3.00	29.0	63.76
Aug.	23.40	30.20	18.00	0.00	3.30	20.0	89.94
Sep.	25.40	32.20	19.90	0.00	7.00	52.0	117.66
Oct.	26.40	33.30	21.00	0.00	10.20	84.0	145.55
Nov.	27.00	33.50	21.60	0.00	10.60	118.0	152.06
Dec.	27.40	33.80	22.40	0.00	12.00	145.0	162.68
Year	25.07	31.55	20.14	0.00	8.72	1063	1419.7

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	693
Compensated thermicity index.....(Itc):	693
Simple continentality index.....(Ic):	6.0
Diurnality index.....(Id):	12.3
Annual ombrothermic index.....(Io):	3.53
Monthly dry ombrothermic index.....(Iod1):	0.85
Bimonthly dry ombrothermic index.....(Iod2):	1.09
Three monthly dry ombrothermic index.....(Iod3):	1.27
Four monthly dry ombrothermic index.....(Iod4):	1.63
Annual ombro-evaporation index.....(Ioe):	2.95
Annual positive temperature.....(Tp):	3008
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	664
Positive precipitation.....(Pp):	1063

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

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - High Euhyperoceanic

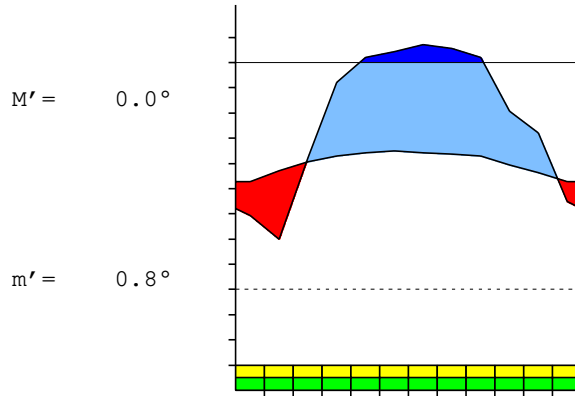
Bioclimate(Variant): TROPICAL XERIC (DRY)

Bioclimatic Belt...: UPPER INFRATROPICAL UPPER DRY

CORUMBA (BRAZIL)

138 m

P= 1063      19° 0'S      57° 39'W      30/30 y.  
 T= 25.1°      Ic= 6.0      Tp= 3008      Tn= 0  
 m= 16.2°      M= 28.0°      Itc= 693      Io= 3.5



TROPICAL XERIC (DRY)  
 UPPER INFRATROPICAL UPPER DRY

WATER INDEX CARD  
 Altitude: 138 m.

CORUMBA (BRAZIL)  
 Latitude: 19° 0'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	21.4	64	29	0	0	29	35	0	0	-0.5
Aug.	23.4	90	20	0	0	20	70	0	0	-0.7
Sep.	25.4	118	52	0	0	52	66	0	0	-0.5
Oct.	26.4	146	84	0	0	84	62	0	0	-0.4
Nov.	27.0	152	118	0	0	118	34	0	0	-0.2
Dec.	27.4	163	145	0	0	145	18	0	0	-0.1
Jan.	27.1	160	170	10	10	160	0	0	0	0.0
Feb.	26.9	137	158	21	31	137	0	0	0	0.1
Mar.	26.4	140	119	-21	10	140	0	0	0	-0.1
Apr.	24.7	104	71	-10	0	81	24	0	0	-0.3
May.	23.1	83	62	0	0	62	21	0	0	-0.2
Jun.	21.6	64	35	0	0	35	29	0	0	-0.4
Year	25.1	1420	1063	*	*	1063	357	0	0	*

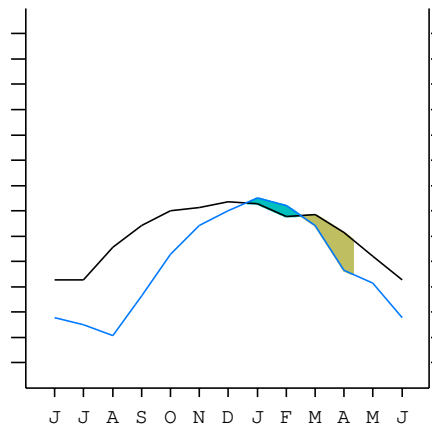
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

CORUMBA (BRAZIL)

19°0'S    57°39'W    138 m 30/30 y.

T= 25.1      Ic= 6.0      TROPICAL XERIC (DRY)  
 m= 16.2      Tp= 3008      UPPER INFRATROPICAL  
 M= 28.0      Tn= 0      UPPER DRY  
 M' = 0.0      Itc= 693  
 m' = 0.8      Io= 3.5  
 P= 1063      mm      ———  
 PE= 1420      mm      ———

Imbibing	20 Dec.
Saturation	15 Feb.
Reserve Use	9 Apr.
Deficit	



CORUMBA (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 [A3.1a.5a]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 3. XERIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 1. INFRATROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Trxe.Itr.Dry

CORUMBA (BRAZIL)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 794  
 Coldest semester of the year.....(Psw): 269  
 Warmest four months period of the year.....(Pcm1): 591  
 Following warmest four months period.....(Pcm2): 287  
 Positive precipitation dryest 3 months.....(Ppd): 84  
 Positive precipitation dryest 2 months.....(Ppd2): 49  
 Positive precipitation dryest 1 month.....(Ppd1): 20  
 Positive precipitation warmest 3 months.....(Pps): 433  
 Positive precipitation warmest 2 months.....(Pps2): 315  
 Positive precipitation warmest 1 month.....(Pps1): 145  
 Positive precipitation coldest 3 months.....(Ppw): 126  
 Positive precipitation coldest 2 months.....(Ppw2): 64  
 Positive precipitation coldest 1 month.....(Ppw1): 29

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	84	254	473	252

Tropical rainfall rhythms: 1 > 4 > 2 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.4  
 Average coldest month [T].....(Tmin): 21.4  
 Maximum temp. warmest month [M].....(Tmmax): 33.8  
 Minimum temp. coldest month [m].....(Tmmin): 16.2  
 Absolute Max.temp. warmest month [M'].....(Tamax): 0.0  
 Absolute Min.temp. coldest month [m'].....(Tamin): 0.8  
 First warmest contrasted month [M].....(Tcmax): 32.2 (9)  
 First coldest contrasted month [m].....(Tcmin): 19.9 (9)  
 Dry station temperature.....(Td): 664  
 Positive temperature dryest 3 months.....(Tpd): 664  
 Positive temperature dryest 2 months.....(Tpd2): 448  
 Positive temperature dryest 1 month.....(Tpd1): 234  
 Positive temperature warmest 3 months.....(Tps): 815  
 Positive temperature warmest 2 months.....(Tps2): 545  
 Positive temperature warmest 1 month.....(Tps1): 274  
 Positive temperature coldest 3 months.....(Tpw): 661  
 Positive temperature coldest 2 months.....(Tpw2): 430  
 Positive temperature coldest 1 month.....(Tpw1): 214

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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

## CORUMBA (BRAZIL)

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## OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.34  
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)	1450	1700	1580	1190	710	620	350	290	200	520	840	1180
Tp	274	271	269	264	247	231	216	214	234	254	264	270
Io (Iom)	5.29	6.27	5.87	4.51	2.87	2.68	1.62	1.36	0.85	2.05	3.18	4.37
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	4730 / 814			2520 / 742			840 / 664			2540 / 788		
Io (Iot)	5.811			3.396			1.265			3.223		
Semesters	December-May						June-November					
Pp(x10)/Tp	7250 / 1556						3380 / 1452					
Io (Iosm)	4.659						2.328					

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## Aridity Value Index (AVI)

[10xPP/TP=IO]: 10630/3008=3.53 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1450	1700	1580	1190	710	620	350	290	200	520	840	1180
Tp [T*10]	274	271	269	264	247	231	216	214	234	254	264	270
Iom [Pp/Tp]	529	627	587	451	287	268	162	136	85	205	318	437
Avm [200-Iom]	***	***	***	***	***	***	38	64	115	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	4730 / 814			2520 / 742			840 / 664			2540 / 788		
Iot [Pp/Tp]	581			340			127			322		
Avs E[Avm<200]	***			***			217			***		
Weak upper arid [1]							Weak lower semiarid [2]					
Strong upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 6.00  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 10.93  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 7.04  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 0.82  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 42.41  
 + Semiarid (60>R>40)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 30.31  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 120.80  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 2.36  
 + Semiarid (3>DR>2)  
 Aridity Index of UNEP [I=P/PE] .....: 0.75  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 27.19  
 + 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	0.63	0.59	0.43	0.25	0.23	0.12	0.10	0.06	0.18	0.29	0.42	0.53
T-E ratio	12.20	12.10	11.88	11.12	10.40	9.72	9.63	10.53	11.43	11.88	12.15	12.33
Precipitation-effectiveness:	38.50					Temperature-efficiency .....: 135.36						
Moisture Index [MI=100*(P-PE)/PE] .....: -25.12 + C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE] .....: 25.12 + Moderate deficit (16.7<DI<33.3)												
Index of humidity [HI=100*s/PE] .....: 0.00 + No surplus (0<HI<10)												
Potential Evapotranspiration PE .....: 1419.69 + Forth mesothermic (997<PE<1440)												

