

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

RIO VERDE (BRAZIL)

Altitude: 746 m.

Latitude: 17°48'S Longitude: 50°55'W

Temperature observation period.: 1972-1987 (16)

Rainfall observation period....: 1972-1987 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	23.00	29.10	19.30	35.50	14.00	272.0	105.13
Feb.	23.60	29.70	19.20	34.90	13.40	198.0	98.65
Mar.	23.40	29.70	19.20	34.20	14.00	212.0	102.28
Apr.	22.40	29.00	17.80	34.80	11.00	117.0	84.10
May.	24.10	28.30	16.40	32.00	3.50	45.0	102.21
Jun.	20.30	27.70	14.80	32.00	1.50	13.0	61.36
Jul.	20.00	27.80	14.10	32.20	1.00	14.0	61.53
Aug.	22.50	30.60	15.80	36.00	5.60	27.0	87.74
Sep.	23.10	30.60	16.90	36.60	7.80	57.0	94.12
Oct.	23.80	30.50	18.50	36.20	9.70	163.0	111.09
Nov.	23.30	29.30	19.00	34.00	10.10	288.0	104.01
Dec.	23.10	28.70	19.20	33.20	16.20	304.0	107.29
Year	22.72	29.25	17.52	34.30	8.98	1710	1119.5

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	646
Compensated thermicity index.....(Itc):	646
Simple continentality index.....(Ic):	4.1
Diurnality index.....(Id):	14.8
Annual ombrothermic index.....(Io):	6.27
Monthly dry ombrothermic index.....(Iod1):	0.64
Bimonthly dry ombrothermic index.....(Iod2):	0.67
Three monthly dry ombrothermic index.....(Iod3):	0.86
Four monthly dry ombrothermic index.....(Iod4):	1.14
Annual ombro-evaporation index.....(Ioe):	5.26
Annual positive temperature.....(Tp):	2726
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	628
Positive precipitation.....(Pp):	1710

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	1	2	2	0

Latitudinal Belt...: Eutropical

Continentality.....: Hyperoceanic - High Euhyperoceanic

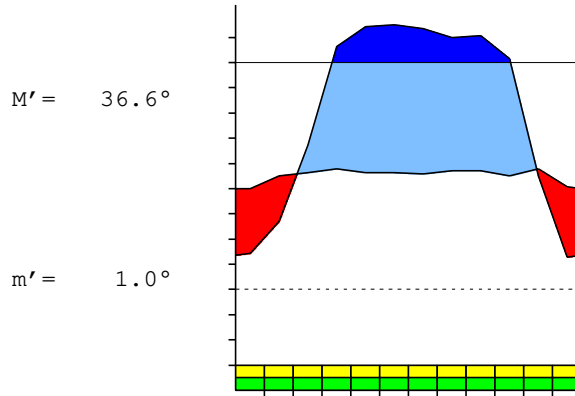
Bioclimate(Variant): TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)

Bioclimatic Belt...: LOW THERMOTROPICAL LOW HUMID

RIO VERDE (BRAZIL)

746 m

P= 1710      17° 48' S      50° 55' W      16/16 y.  
 T= 22.7°      Ic= 4.1      Tp= 2726      Tn= 0  
 m= 14.1°      M= 27.8°      Itc= 646      Io= 6.3



TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)  
 LOW THERMOTROPICAL LOW HUMID

WATER INDEX CARD

RIO VERDE (BRAZIL)

Altitude: 746 m.

Latitude: 17° 48' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	20.0	62	14	0	0	14	48	0	9	-0.7
Aug.	22.5	88	27	0	0	27	61	0	5	-0.6
Sep.	23.1	94	57	0	0	57	37	0	2	-0.3
Oct.	23.8	111	163	52	52	111	0	0	1	0.4
Nov.	23.3	104	288	48	100	104	0	136	69	1.7
Dec.	23.1	107	304	0	100	107	0	197	133	1.8
Jan.	23.0	105	272	0	100	105	0	167	150	1.5
Feb.	23.6	99	198	0	100	99	0	99	125	1.0
Mar.	23.4	102	212	0	100	102	0	110	117	1.0
Apr.	22.4	84	117	0	100	84	0	33	75	0.3
May.	24.1	102	45	-57	43	102	0	0	38	-0.5
Jun.	20.3	61	13	-43	0	56	6	0	19	-0.7
Year	22.7	1120	1710	*	*	969	151	741	741	*

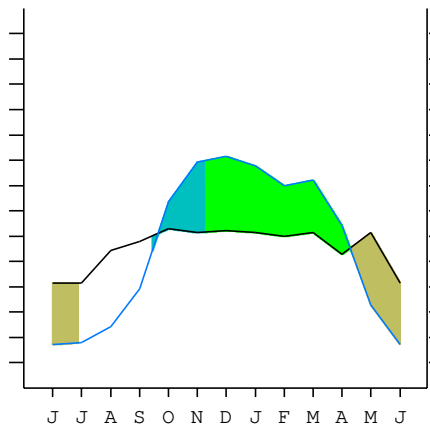
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

RIO VERDE (BRAZIL)

17°48' S    50°55' W    746 m 16/16 y.

T= 22.7      Ic= 4.1      TROPICAL PLUVISEASONAL (SUBMESOPHYTIC)  
 m= 14.1      Tp= 2726      LOW THERMOTROPICAL  
 M= 27.8      Tn= 0      LOW HUMID  
 M' = 36.6      Itc= 646  
 m' = 1.0      Io= 6.3  
 P= 1710      mm    ———  
 PE= 1120      mm    ———

Imbibing	13 Sep.
Saturation	8 Nov.
Reserve Use	11 Apr.
Deficit	27 Jun.



RIO VERDE (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.A2]  
 + Latitudinal zone ....: A. Warm  
 + Latitudinal belt ....: 2. Eutropical  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm

Bioclimatic types [A4.2b.7b]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 4. PLUVISEASONAL  
 + Bioclimatic variant ..:  
 + Thermic type.....: 2. THERMOTROPICAL  
 + Thermic subtype.....: b. LOW  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification .....: Trde.Ttr.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1437  
 Coldest semester of the year.....(Psw): 273  
 Warmest four months period of the year.....(Pcm1): 572  
 Following warmest four months period.....(Pcm2): 111  
 Positive precipitation dryest 3 months.....(Ppd): 54  
 Positive precipitation dryest 2 months.....(Ppd2): 27  
 Positive precipitation dryest 1 month.....(Ppd1): 13  
 Positive precipitation warmest 3 months.....(Pps): 508  
 Positive precipitation warmest 2 months.....(Pps2): 451  
 Positive precipitation warmest 1 month.....(Pps1): 45  
 Positive precipitation coldest 3 months.....(Ppw): 54  
 Positive precipitation coldest 2 months.....(Ppw2): 27  
 Positive precipitation coldest 1 month.....(Ppw1): 14

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	54	508	774	374

Tropical rainfall rhythms: 1 > 4 > 2 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.1  
 Average coldest month [T].....(Tmin): 20.0  
 Maximum temp. warmest month [M].....(Tmmax): 30.6  
 Minimum temp. coldest month [m].....(Tmmin): 14.1  
 Absolute Max.temp. warmest month [M'].....(Tamax): 36.6  
 Absolute Min.temp. coldest month [m'].....(Tamin): 1.0  
 First warmest contrasted month [M].....(Tcmax): 30.6 (8)  
 First coldest contrasted month [m].....(Tcmin): 15.8 (8)  
 Dry station temperature.....(Td): 628  
 Positive temperature dryest 3 months.....(Tpd): 628  
 Positive temperature dryest 2 months.....(Tpd2): 403  
 Positive temperature dryest 1 month.....(Tpd1): 203  
 Positive temperature warmest 3 months.....(Tps): 702  
 Positive temperature warmest 2 months.....(Tps2): 471  
 Positive temperature warmest 1 month.....(Tps1): 241  
 Positive temperature coldest 3 months.....(Tpw): 628  
 Positive temperature coldest 2 months.....(Tpw2): 403  
 Positive temperature coldest 1 month.....(Tpw1): 200

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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): 0.65  
 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)	3040	2720	1980	2120	1170	450	130	140	270	570	1630	2880
Tp	231	230	236	234	224	241	203	200	225	231	238	233
Io (Iom)	13.2	11.8	8.39	9.06	5.22	1.87	0.64	0.70	1.20	2.47	6.85	12.4
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	7740 / 697			3740 / 699			540 / 628			5080 / 702		
Io (Iot)	11.10			5.351			0.860			7.236		
Semesters	December-May						June-November					
Pp(x10)/Tp	11480 / 1396						5620 / 1330					
Io (Iosm)	8.223						4.226					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 17100/2726=6.27 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	3040	2720	1980	2120	1170	450	130	140	270	570	1630	2880
Tp [T*10]	231	230	236	234	224	241	203	200	225	231	238	233
Iom [Pp/Tp]	\$\$	\$\$	839	906	522	187	64	70	120	247	685	\$\$
Avm [200-Iom]	***	***	***	***	***	13	136	130	80	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	7740 / 697			3740 / 699			540 / 628			5080 / 702		
Iot [Pp/Tp]	1110			535			86			724		
Avs E[Avm<200]	***			***			346			***		
Weak lower arid [2]						Weak upper arid [1]						
Strong lower semiarid [1]						Weak upper semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	4.10
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		2.40
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		0.94
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		0.59
+ Hyperoceanic (0<CI<0.6)		
Rainfall Index of Lang (1925) [R=P/T] .....		75.28
+ Temperate warm (100>R>60)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		52.27
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		231.85
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		1.33
+ Humid (2>DR>0)		
Aridity Index of UNEP [I=P/PE] .....		1.53
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		54.04
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....

- + Climate .....
- + Region .....
- + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.18	0.81	0.88	0.47	0.16	0.04	0.05	0.09	0.21	0.65	1.24	1.33
T-E ratio	10.35	10.62	10.53	10.08	10.85	9.13	9.00	10.13	10.40	10.71	10.48	10.40
Precipitation-effectiveness: 71.06						Temperature-efficiency .....						122.67
Moisture Index [MI=100*(P-PE)/PE] .....												52.74
+ B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE] .....												13.48
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....												66.23
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE .....												1119.51
+ Forth mesothermic (997<PE<1440)												

