

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

RIO BRANCO (BRAZIL)

Altitude: 160 m.

Latitude: 9°58'S Longitude: 67°48'W

Temperature observation period.: 1969-1990 (22)

Rainfall observation period....: 1969-1990 (22)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	25.50	30.90	22.30	35.20	14.20	288.0	129.06
Feb.	25.50	30.90	22.60	37.20	16.00	286.0	115.92
Mar.	25.50	31.30	22.70	37.20	14.00	228.0	125.48
Apr.	25.30	31.10	22.50	35.20	10.40	174.0	115.33
May.	24.50	30.60	20.60	35.40	10.90	102.0	106.06
Jun.	23.20	30.30	19.30	36.20	7.80	46.0	84.52
Jul.	23.40	31.30	18.50	37.20	6.40	42.0	90.52
Aug.	24.30	32.60	19.20	37.60	6.00	40.0	104.31
Sep.	25.20	32.80	20.90	38.20	10.00	96.0	115.02
Oct.	25.70	32.60	21.60	38.40	12.40	172.0	129.91
Nov.	25.70	31.90	21.90	37.40	14.40	206.0	128.68
Dec.	25.60	31.20	22.20	39.80	16.00	264.0	133.12
Year	24.95	31.46	21.19	37.08	11.54	1944	1377.9

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	746
Compensated thermicity index.....(Itc):	746
Simple continentality index.....(Ic):	2.5
Diurnality index.....(Id):	13.4
Annual ombrothermic index.....(Io):	6.49
Monthly dry ombrothermic index.....(Iod1):	1.65
Bimonthly dry ombrothermic index.....(Iod2):	1.72
Three monthly dry ombrothermic index.....(Iod3):	1.81
Four monthly dry ombrothermic index.....(Iod4):	2.41
Annual ombro-evaporation index.....(Ioe):	2.89
Annual positive temperature.....(Tp):	2994
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	709
Positive precipitation.....(Pp):	1944

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	8	1	3	0	0

Latitudinal Belt...: Eutropical

Continentality.....: Hyperoceanic - Low Ultrahyperoceanic

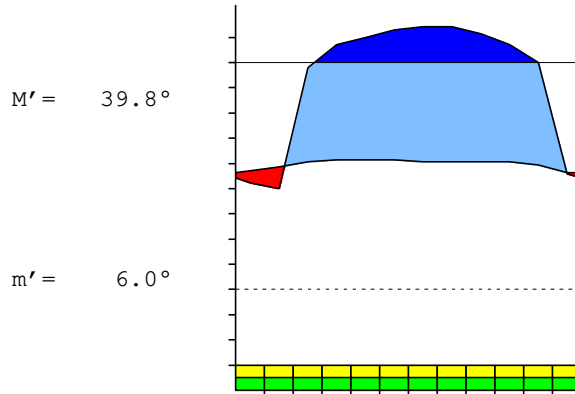
Bioclimate(Variant): TROPICAL PLUVISEASONAL (MESOPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW HUMID

RIO BRANCO (BRAZIL)

160 m

P= 1944      9° 58' S      67° 48' W      22/22 y.  
 T= 24.9°      Ic= 2.5      Tp= 2994      Tn= 0  
 m= 19.3°      M= 30.3°      Itc= 746      Io= 6.5



TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 UPPER INFRATROPICAL LOW HUMID

WATER INDEX CARD  
 Altitude: 160 m.

RIO BRANCO (BRAZIL)  
 Latitude: 9° 58' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	23.4	91	42	-49	9	91	0	0	11	-0.5
Aug.	24.3	104	40	-9	0	49	55	0	6	-0.6
Sep.	25.2	115	96	0	0	96	19	0	3	-0.1
Oct.	25.7	130	172	42	42	130	0	0	1	0.3
Nov.	25.7	129	206	58	100	129	0	19	10	0.6
Dec.	25.6	133	264	0	100	133	0	131	71	0.9
Jan.	25.5	129	288	0	100	129	0	159	115	1.2
Feb.	25.5	116	286	0	100	116	0	170	142	1.4
Mar.	25.5	125	228	0	100	125	0	103	122	0.8
Apr.	25.3	115	174	0	100	115	0	59	91	0.5
May.	24.5	106	102	-4	96	106	0	0	45	0.0
Jun.	23.2	85	46	-39	57	85	0	0	23	-0.4
Year	24.9	1378	1944	*	*	1304	74	640	640	*

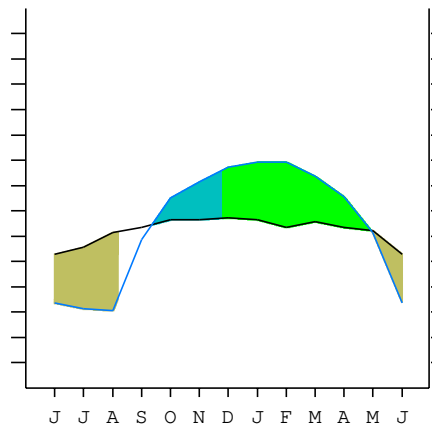
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

RIO BRANCO (BRAZIL)

9°58' S    67°48' W    160 m 22/22 y.

T= 24.9      Ic= 2.5      TROPICAL PLUVISEASONAL (MESOPHYTIC)  
 m= 19.3      Tp= 2994      UPPER INFRATROPICAL  
 M= 30.3      Tn= 0      LOW HUMID  
 M' = 39.8      Itc= 746  
 m' = 6.0      Io= 6.5  
 P= 1944      mm ————  
 PE= 1378      mm ————

Imbibing	10 Sep.
Saturation	23 Nov.
Reserve Use	29 Apr.
Deficit	5 Aug.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality 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 [A4.1a.7b]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 4. PLUVISEASONAL  
 + Bioclimatic variant .:  
 + Thermic type.....: 1. INFRATROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification .....: Trde.Itr.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1444  
 Coldest semester of the year.....(Psw): 500  
 Warmest four months period of the year.....(Pcm1): 930  
 Following warmest four months period.....(Pcm2): 790  
 Positive precipitation dryest 3 months.....(Ppd): 128  
 Positive precipitation dryest 2 months.....(Ppd2): 82  
 Positive precipitation dryest 1 month.....(Ppd1): 40  
 Positive precipitation warmest 3 months.....(Pps): 642  
 Positive precipitation warmest 2 months.....(Pps2): 378  
 Positive precipitation warmest 1 month.....(Pps1): 172  
 Positive precipitation coldest 3 months.....(Ppw): 128  
 Positive precipitation coldest 2 months.....(Ppw2): 88  
 Positive precipitation coldest 1 month.....(Ppw1): 46

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	128	474	838	504

Tropical rainfall rhythms: 1 > 2 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.7  
 Average coldest month [T].....(Tmin): 23.2  
 Maximum temp. warmest month [M].....(Tmmax): 32.8  
 Minimum temp. coldest month [m].....(Tmmin): 18.5  
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.8  
 Absolute Min.temp. coldest month [m'].....(Tamin): 6.0  
 First warmest contrasted month [M].....(Tcmax): 32.6 (8)  
 First coldest contrasted month [m].....(Tcmin): 19.2 (8)  
 Dry station temperature.....(Td): 709  
 Positive temperature dryest 3 months.....(Tpd): 709  
 Positive temperature dryest 2 months.....(Tpd2): 477  
 Positive temperature dryest 1 month.....(Tpd1): 243  
 Positive temperature warmest 3 months.....(Tps): 770  
 Positive temperature warmest 2 months.....(Tps2): 514  
 Positive temperature warmest 1 month.....(Tps1): 257  
 Positive temperature coldest 3 months.....(Tpw): 709  
 Positive temperature coldest 2 months.....(Tpw2): 466  
 Positive temperature coldest 1 month.....(Tpw1): 232

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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): 0.71  
 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)	2640	2880	2860	2280	1740	1020	460	420	400	960	1720	2060
Tp	256	255	255	255	253	245	232	234	243	252	257	257
Io (Iom)	10.3	11.3	11.2	8.94	6.88	4.16	1.98	1.79	1.65	3.81	6.69	8.02
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	8380 / 766			5040 / 753			1280 / 709			4740 / 766		
Io (Iot)	10.94			6.693			1.805			6.188		
Semesters	December-May						June-November					
Pp(x10)/Tp	13420 / 1519						6020 / 1475					
Io (Iosm)	8.835						4.081					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 19440/2994=6.49 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2640	2880	2860	2280	1740	1020	460	420	400	960	1720	2060
Tp [T*10]	256	255	255	255	253	245	232	234	243	252	257	257
Iom [Pp/Tp]	\$\$	\$\$	\$\$	894	688	416	198	179	165	381	669	802
Avm [200-Iom]	***	***	***	***	***	***	2	21	35	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	8380 / 766			5040 / 753			1280 / 709			4740 / 766		
Iot [Pp/Tp]	1094			669			181			619		
Avs E[Avm<200]	***			***			58			***		
Strong upper semiarid [1]						Weak upper semiarid [3]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 2.50  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 4.16  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: -1.55  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 0.58  
 + Hyperoceanic (0<CI<0.6)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 77.92  
 + Temperate warm (100>R>60)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 55.62  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 265.00  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 1.28  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 1.41  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 42.67  
 + 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	1.18	1.17	0.91	0.68	0.38	0.16	0.15	0.14	0.35	0.66	0.81	1.07
T-E ratio	11.48	11.48	11.48	11.38	11.02	10.44	10.53	10.93	11.34	11.57	11.57	11.52
Precipitation-effectiveness:	76.64					Temperature-efficiency .....: 134.73						
Moisture Index [MI=100*(P-PE)/PE] .....: 41.08 + B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE] .....: 5.40 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....: 46.48 + Strong surplus (20<HI)												
Potential Evapotranspiration PE .....: 1377.94 + Forth mesothermic (997<PE<1440)												

