Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

MANAUS (BRAZIL) Altitude: 48 m.

Latitude: 3°8'S Longitude: 60°1'W
Temperature observation period.: 1949-1960 (12)
Rainfall observation period....: 1949-1960 (12)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	26.20	31.10	23.90	37.40	20.40	266.0	133.04
Feb.	26.20	31.10	23.90	37.60	20.00	247.0	119.10
Mar.	26.40	31.10	23.90	36.10	19.40	269.0	135.69
Apr.	26.20	30.60	23.90	34.60	20.20	267.0	127.97
May.	26.30	31.10	23.90	35.00	20.00	194.0	132.44
Jun.	26.60	31.10	23.90	35.00	19.00	100.0	136.30
Jul.	26.80	31.70	23.90	35.20	17.60	64.0	142.04
Aug.	27.50	32.80	23.90	36.70	19.20	38.0	149.25
Sep.	27.90	33.30	23.90	37.20	20.00	60.0	146.71
Oct.	27.80	33.30	24.40	37.80	20.20	124.0	151.74
Nov.	27.60	32.80	24.40	37.20	20.20	152.0	147.19
Dec.	26.80	32.20	23.90	38.60	19.60	216.0	144.80
Year	26.86	31.85	23.98	36.53	19.65	1997	1666.3

BIOCLIMATIC INDICES AND DIAGNOSIS

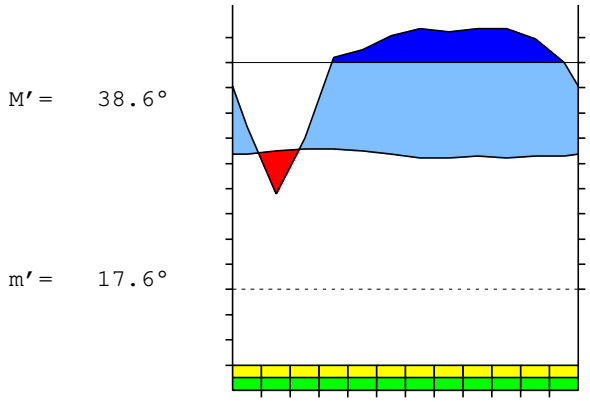
Thermicity index.....(It): 819
Compensated thermicity index.....(Itc): 819
Simple continentality index.....(Ic): 1.7
Diurnality index.....(Id): 9.4
Annual ombrothermic index.....(Io): 6.20
Monthly dry ombrothermic index.....(Iod1): 1.38
Bimonthly dry ombrothermic index.....(Iod2): 1.77
Threemonthly dry ombrothermic index.....(Iod3): 1.97
Fourmonthly dry ombrothermic index.....(Iod4): 2.41
Annual ombro-evaporation index.....(Ioe): 0.49
Annual positive temperature.....(Tp): 3223
Annual negative temperature.....(Tn): 0
Dry station temperature.....(Td): 822
Positive precipitation.....(Pp): 1997

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

Latitudinal Belt...: Ecuatorial
Continentality.....: Hyperoceanic - High Ultrahyperoceanic
Bioclimate(Variant): TROPICAL PLUVISEASONAL (MESOPHYTIC)
Bioclimatic Belt...: UPPER INFRATROPICAL LOW HUMID

MANAUS (BRAZIL) 48 m

P= 1997 3° 8'S 60° 1'W 12/12 y.
T= 26.9° Ic= 1.7 Tp= 3223 Tn= 0
m= 23.9° M= 31.1° Itc= 819 Io= 6.2



TROPICAL PLUVISEASONAL (MESOPHYTIC)
UPPER INFRATROPICAL LOW HUMID

WATER INDEX CARD MANAUS (BRAZIL)
Altitude: 48 m. Latitude: 3° 8'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	26.8	142	64	-64	0	128	14	0	23	-0.5
Aug.	27.5	149	38	0	0	38	111	0	12	-0.7
Sep.	27.9	147	60	0	0	60	87	0	6	-0.5
Oct.	27.8	152	124	0	0	124	28	0	3	-0.1
Nov.	27.6	147	152	5	5	147	0	0	1	0.0
Dec.	26.8	145	216	71	76	145	0	0	1	0.4
Jan.	26.2	133	266	24	100	133	0	109	55	0.9
Feb.	26.2	119	247	0	100	119	0	128	91	1.0
Mar.	26.4	136	269	0	100	136	0	133	112	0.9
Apr.	26.2	128	267	0	100	128	0	139	126	1.0
May.	26.3	132	194	0	100	132	0	62	94	0.4
Jun.	26.6	136	100	-36	64	136	0	0	47	-0.2
Year	26.9	1666	1997	*	*	1426	240	571	571	*

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

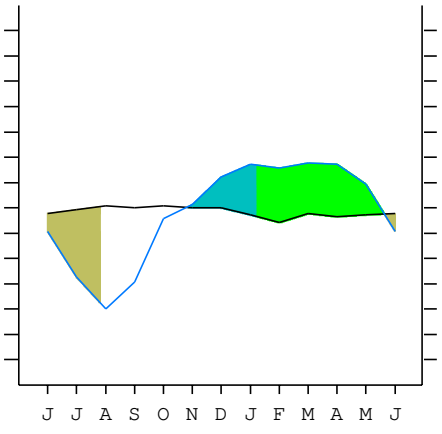
MANAUS (BRAZIL)

3°8'S 60°1'W 48 m 12/12 y.

T= 26.9 Ic= 1.7
m= 23.9 Tp= 3223
M= 31.1 Tn= 0
M'= 38.6 Itc= 819
m'= 17.6 Io= 6.2
P= 1997 mm
PE= 1666 mm

TROPICAL PLUVISEASONAL (MESOPHYTIC)
UPPER INFRATROPICAL
LOW HUMID

Imbibing	26 Oct.
Saturation	6 Jan.
Reserve Use	19 May.
Deficit	25 Jul.



MANAUS (BRAZIL)

Latitude: 3°8'S Longitude: 60°1'W Altitude: 48 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [A1a]
- + Type .....: A. Hyperoceanic
- + Subtype .....: 1. Ultrahyperoceanic
- + Variant .....: a. High

Thermic types [A1.A1]
- + Latitudinal zone ....: A. Warm
- + Latitudinal belt ....: 1. Ecuatorial
- + 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

MANAUS (BRAZIL)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 654
Coldest semester of the year.....(Psw): 1343
Warmest four months period of the year.....(Pcm1): 374
Following warmest four months period.....(Pcm2): 998
Positive precipitation dryest 3 months.....(Ppd): 162
Positive precipitation dryest 2 months.....(Ppd2): 98
Positive precipitation dryest 1 month.....(Ppd1): 38
Positive precipitation warmest 3 months.....(Pps): 336
Positive precipitation warmest 2 months.....(Pps2): 184
Positive precipitation warmest 1 month.....(Pps1): 60
Positive precipitation coldest 3 months.....(Ppw): 782
Positive precipitation coldest 2 months.....(Ppw2): 513
Positive precipitation coldest 1 month.....(Ppw1): 266

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	202	336	729	730

Tropical rainfall rhythms: 2 > 1 > 4 > 3

MANAUS (BRAZIL)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.9
Average coldest month [T].....(Tmin): 26.2
Maximum temp. warmest month [M].....(Tmmax): 33.3
Minimum temp. coldest month [m].....(Tmmin): 23.9
Absolute Max.temp. warmest month [M'].....(Tamax): 38.6
Absolute Min.temp. coldest month [m'].....(Tamin): 17.6
First warmest contrasted month [M].....(Tcmax): 33.3 (9)
First coldest contrasted month [m].....(Tcmin): 23.9 (9)
Dry station temperature.....(Td): 822
Positive temperature dryest 3 months.....(Tpd): 822
Positive temperature dryest 2 months.....(Tpd2): 554
Positive temperature dryest 1 month.....(Tpd1): 275
Positive temperature warmest 3 months.....(Tps): 833
Positive temperature warmest 2 months.....(Tps2): 557
Positive temperature warmest 1 month.....(Tps1): 279
Positive temperature coldest 3 months.....(Tpw): 788
Positive temperature coldest 2 months.....(Tpw2): 524
Positive temperature coldest 1 month.....(Tpw1): 262

MANAUS (BRAZIL)

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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

MANAUS (BRAZIL)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.83
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)	2160	2660	2470	2690	2670	1940	1000	640	380	600	1240	1520
Tp	268	262	262	264	262	263	266	268	275	279	278	276
Io (Iom)	8.06	10.2	9.43	10.2	10.2	7.38	3.76	2.39	1.38	2.15	4.46	5.51
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	7290 / 792			7300 / 789			2020 / 809			3360 / 833		
Io (Iot)	9.205			9.252			2.497			4.034		
Semesters	December-May						June-November					
Pp(x10)/Tp	14590 / 1581						5380 / 1642					
Io (Iosm)	9.228						3.276					

MANAUS (BRAZIL)

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 19970/3223=6.20 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2160	2660	2470	2690	2670	1940	1000	640	380	600	1240	1520
Tp [T*10]	268	262	262	264	262	263	266	268	275	279	278	276
Iom [Pp/Tp]	806	$$	943	$$	$$	738	376	239	138	215	446	551
Avm [200-Iom]	***	***	***	***	***	***	***	***	62	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	7290 / 792			7300 / 789			2020 / 809			3360 / 833		
Iot [Pp/Tp]	920			925			250			403		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [1]												

MANAUS (BRAZIL)

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 1.70
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....: 32.47
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....: -1.28
  + Hyperoceanic (-20<CI<20)
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 0.83
  + Oceanic (0.6<CI<1.1)
Rainfall Index of Lang (1925) [R=P/T] .....: 74.35
  + Temperate warm (100>R>60)
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 54.18
  + Humid (60>Ia>30)
I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)] .....: 371.41
  + Humid (Q>90)
I of Dantin & Revenga (1940) [DR=100*T/P] .....: 1.34
  + Humid (2>DR>0)
Aridity Index of UNEP [I=P/PE] .....: 1.20
  + Humid (I>0.65)
Potencial Erosion I of Fournier (1960) [K=Pi²/P].....: 36.23
  + Very low (K<60)

MANAUS (BRAZIL)

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BIOCLIMATIC INDICES II

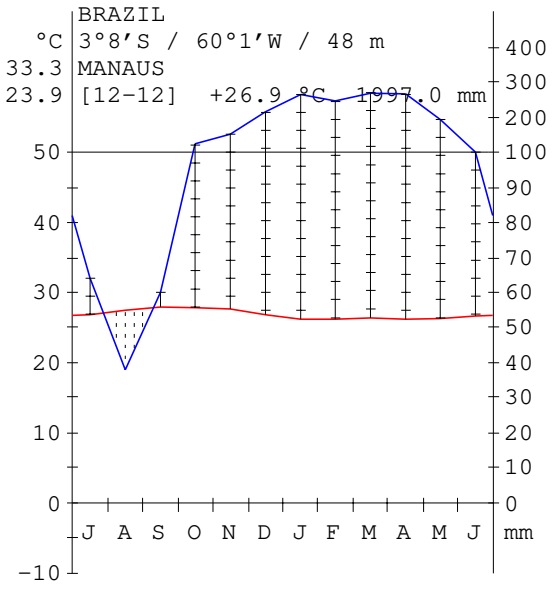
Bioclimatic classification of Gaussen & Bagnouls (1957)
  + Climate ....: A. Warm and temperate warm
  + Region .....: 3. Termoxeroteric (Mediterranean warm)
  + Thermic type: 1. Megathermic

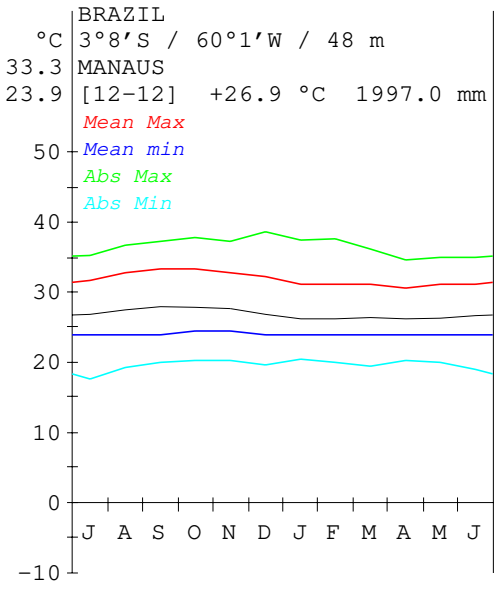
Thornthwaite (1948)

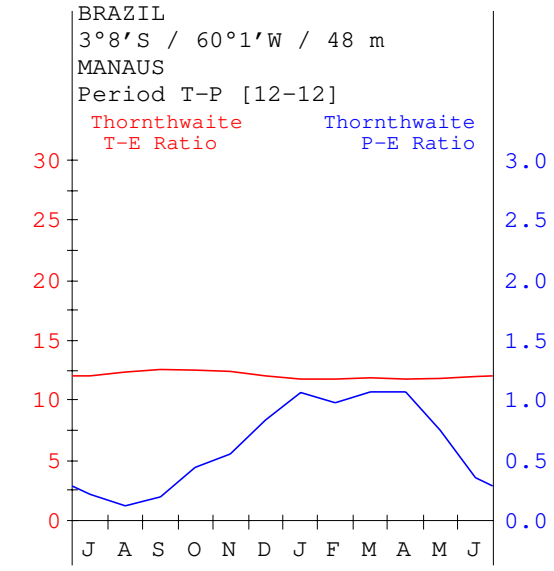
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.06	0.98	1.07	1.07	0.75	0.36	0.22	0.12	0.20	0.44	0.55	0.83
T-E ratio	11.79	11.79	11.88	11.79	11.83	11.97	12.06	12.38	12.55	12.51	12.42	12.06

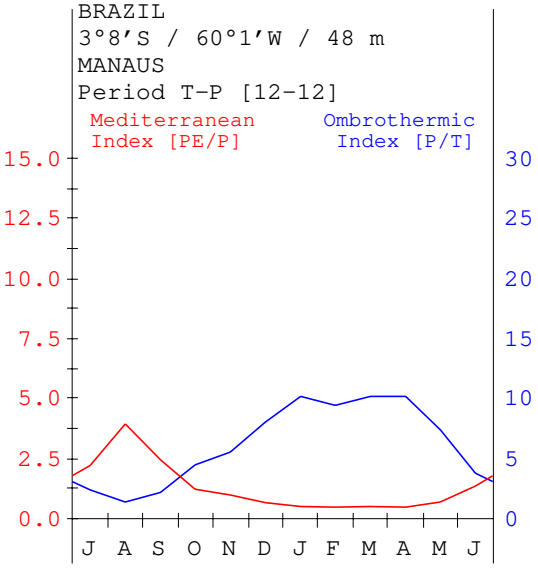
Precipitation-effectiveness: 76.50 Temperature-efficiency ....: 145.03

Moisture Index [MI=100*(P-PE)/PE] .....: 19.85
  + C2.Subhumid humid (0<MI<20)
Index of dryness [DI=100*d/PE] .....: 14.40
  + No deficit (0<DI<16.7)
Index of humidity [HI=100*s/PE] .....: 34.25
  + Strong surplus (20<HI)
Potential Evapotranspiration PE .....: 1666.27
  + Megathermic (PE>1440)




BRAZIL
°C
3°8'S / 60°1'W / 48 m
33.3
MANAUS
23.9
[12-12] +26.9 °C 1997.0 mm
Mean Max
Mean min
Abs Max
Abs Min
50
40
30
20
10
0
-10
J A S O N D J F M A M J


BRAZIL
3°8'S / 60°1'W / 48 m
MANAUS
Period T-P [12-12]
Thornthwaite T-E Ratio
Thornthwaite P-E Ratio
30
25
20
15
10
5
0
3.0
2.5
2.0
1.5
1.0
0.5
0.0
J A S O N D J F M A M J


BRAZIL
3°8'S / 60°1'W / 48 m
MANAUS
Period T-P [12-12]
Mediterranean Index [PE/P]
Ombrothermic Index [P/T]
15.0
12.5
10.0
7.5
5.0
2.5
0.0
30
25
20
15
10
5
0
J A S O N D J F M A M J