

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

MONTES CLAROS (BRAZIL) Altitude: 654 m.

Latitude: 16°43'S Longitude: 43°49'W

Temperature observation period.: 1969-1994 (26)

Rainfall observation period....: 1969-1994 (26)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	24.17	30.56	17.78	38.89	11.11	169.9	120.38
Feb.	23.89	30.00	17.78	37.78	12.78	146.1	101.25
Mar.	23.89	30.00	17.78	37.78	10.00	122.9	108.49
Apr.	23.34	30.00	16.67	38.89	6.11	45.0	94.27
May.	21.11	28.33	13.89	39.44	6.11	6.1	72.40
Jun.	19.73	27.78	11.67	32.78	6.11	4.1	58.11
Jul.	19.17	27.22	11.11	32.78	3.89	3.0	55.62
Aug.	20.28	28.89	11.67	37.22	4.44	6.1	68.51
Sep.	22.78	31.11	14.44	37.22	7.22	22.1	91.18
Oct.	24.17	31.11	17.22	37.22	8.89	72.9	116.12
Nov.	23.89	30.00	17.78	37.78	10.00	168.9	111.59
Dec.	23.89	29.44	18.33	37.78	11.11	197.1	116.75
Year	22.53	29.54	15.51	37.13	8.15	964	1114.7

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	609
Compensated thermicity index.....(Itc):	609
Simple continentality index.....(Ic):	5.0
Diurnality index.....(Id):	17.2
Annual ombrothermic index.....(Io):	3.57
Monthly dry ombrothermic index.....(Iod1):	0.16
Bimonthly dry ombrothermic index.....(Iod2):	0.18
Threemonthly dry ombrothermic index.....(Iod3):	0.22
Fourmonthly dry ombrothermic index.....(Iod4):	0.70
Annual ombro-evaporation index.....(Ioe):	0.87
Annual positive temperature.....(Tp):	2703
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	600
Positive precipitation.....(Pp):	964

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

Latitudinal Belt...: Eutropical

Continentalite.....: Hyperoceanic - High Euhyperoceanic

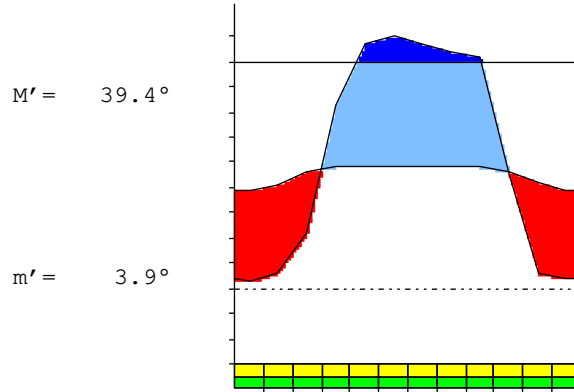
Bioclimate(Variant): TROPICAL XERIC (DRY)

Bioclimatic Belt...: LOW THERMOTROPICAL UPPER DRY

MONTES CLAROS (BRAZIL)

654 m

P= 964 16° 43'S 43° 49'W 26/26 y.
 T= 22.5 ° Ic= 5.0 Tp= 2703 Tn= 0
 m= 11.1 ° M= 27.2 ° Itc= 609 Io= 3.6



TROPICAL XERIC (DRY)
 LOW THERMOTROPICAL UPPER DRY

WATER INDEX CARD MONTES CLAROS (BRAZIL)

Altitude: 654 m. Latitude: 16° 43'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	19.2	56	3	0	0	3	53	0	2	-0.9
Aug.	20.3	69	6	0	0	6	62	0	1	-0.9
Sep.	22.8	91	22	0	0	22	69	0	0	-0.7
Oct.	24.2	116	73	0	0	73	43	0	0	-0.3
Nov.	23.9	112	169	57	57	112	0	0	0	0.5
Dec.	23.9	117	197	43	100	117	0	38	19	0.6
Jan.	24.2	120	170	0	100	120	0	50	34	0.4
Feb.	23.9	101	146	0	100	101	0	45	40	0.4
Mar.	23.9	108	123	0	100	108	0	14	27	0.1
Apr.	23.3	94	45	-49	51	94	0	0	13	-0.5
May.	21.1	72	6	-51	0	57	16	0	7	-0.9
Jun.	19.7	58	4	0	0	4	54	0	3	-0.9
Year	22.5	1115	964	*	*	818	297	146	146	*

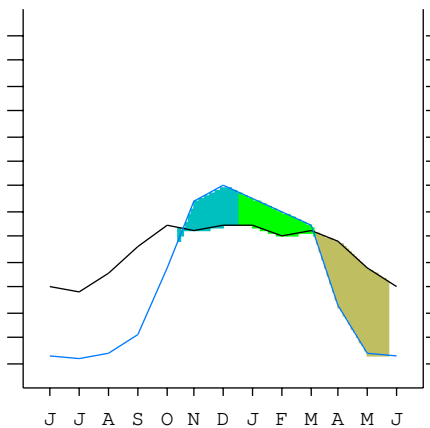
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

MONTES CLAROS (BRAZIL)

16°43'S 43°49'W 654 m 26/26 y.

T= 22.5 Ic= 5.0 TROPICAL XERIC (DRY)
 m= 11.1 Tp= 2703 LOW THERMOTROPICAL
 M= 27.2 Tn= 0 UPPER DRY
 M' = 39.4 Itc= 609
 m' = 3.9 Io= 3.6
 P= 964 mm ———
 PE= 1115 mm ———

Imbibing	13 Oct.
Saturation	16 Dec.
Reserve Use	7 Mar.
Deficit	23 May.



MONTES CLAROS (BRAZIL)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality 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 [A3.2b.5a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 3. XERIC
 + Bioclimatic variant .: DRY
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 5. DRY
 + Ombrothermic subtype : a. UPPER
 Bioclimatic ClassificationTrxe (Dry).Ttr.Dry.Eho

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 878
 Coldest semester of the year.....(Psw): 86
 Warmest four months period of the year.....(Pcm1): 609
 Following warmest four months period.....(Pcm2): 320
 Positive precipitation dryest 3 months.....(Ppd): 13
 Positive precipitation dryest 2 months.....(Ppd2): 7
 Positive precipitation dryest 1 month.....(Ppd1): 3
 Positive precipitation warmest 3 months.....(Pps): 439
 Positive precipitation warmest 2 months.....(Pps2): 316
 Positive precipitation warmest 1 month.....(Pps1): 170
 Positive precipitation coldest 3 months.....(Ppw): 13
 Positive precipitation coldest 2 months.....(Ppw2): 7
 Positive precipitation coldest 1 month.....(Ppw1): 3

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	13	263	513	174

Tropical rainfall rhythms: 1 > 4 > 2 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.2
 Average coldest month [T].....(Tmin): 19.2
 Maximum temp. warmest month [M].....(Tmmax): 31.1
 Minimum temp. coldest month [m].....(Tmmin): 11.1
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.4
 Absolute Min.temp. coldest month [m'].....(Tamin): 3.9
 First warmest contrasted month [M].....(Tcmax): 28.9 (8)
 First coldest contrasted month [m].....(Tcmin): 11.7 (8)
 Dry station temperature.....(Td): 600
 Positive temperature dryest 3 months.....(Tpd): 600
 Positive temperature dryest 2 months.....(Tpd2): 389
 Positive temperature dryest 1 month.....(Tpd1): 192
 Positive temperature warmest 3 months.....(Tps): 720
 Positive temperature warmest 2 months.....(Tps2): 481
 Positive temperature warmest 1 month.....(Tps1): 242
 Positive temperature coldest 3 months.....(Tpw): 592
 Positive temperature coldest 2 months.....(Tpw2): 389
 Positive temperature coldest 1 month.....(Tpw1): 192

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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): 1.16
 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)	1971	1699	1461	1229	450	61	41	30	61	221	729	1689
Tp	239	242	239	239	233	211	197	192	203	228	242	239
Io (Iom)	8.25	7.03	6.12	5.14	1.93	0.29	0.21	0.16	0.30	0.97	3.02	7.07
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp (x10)/Tp	5131 / 719			1740 / 683			132 / 592			2639 / 708		
Io (Iot)	7.131			2.546			0.223			3.725		
Semesters	December-May						June-November					
Pp (x10)/Tp	6871 / 1403						2771 / 1300					
Io (Iosm)	4.898						2.131					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 9642/2703=3.57 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1971	1699	1461	1229	450	61	41	30	61	221	729	1689
Tp [T*10]	239	242	239	239	233	211	197	192	203	228	242	239
Iom [Pp/Tp]	825	703	612	514	193	29	21	16	30	97	302	707
Avm [200-Iom]	***	***	***	***	7	171	179	184	170	103	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	5131 / 719			1740 / 683			132 / 592			2639 / 708		
Iot [Pp/Tp]	713			255			22			373		
Avs E [Avm < 200]	***			***			533			***		
Upper ultrahyperarid [1]							Lower hyperarid [3]					
Upper hyperarid [1]							Weak upper arid [1]					
Weak upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	5.00
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		9.15
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		4.91
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.76
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		42.80
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		29.64
+ Subhumid (30>Ia>20)		
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]		114.19
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P]		2.34
+ Semiarid (3>DR>2)		
Aridity Index of UNEP [I=P/PE]		0.87
+ Humid (I>0.65)		
Potencial Erosion I of Fournier (1960) [K=Pi ² /P].....		40.29
+ 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. Termoxeroterica (Mediterranean warm)
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.68	0.58	0.48	0.16	0.02	0.01	0.01	0.02	0.07	0.26	0.68	0.80
T-E ratio	10.88	10.75	10.75	10.50	9.50	8.88	8.63	9.13	10.25	10.88	10.75	10.75
Precipitation-effectiveness: 37.66						Temperature-efficiency: 121.64						
Moisture Index [MI=100*(P-PE)/PE]												
+ C1. Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE]												
+ Moderate deficit (16.7<DI<33.3)												
Index of humidity [HI=100*s/PE]												
+ Moderate surplus (10<HI<20)												
Potential Evapotranspiration PE												
+ Forth mesothermic (997<PE<1440)												

