

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

UBERLANDIA (BRAZIL)

Altitude: 922 m.

Latitude: 18°53'S Longitude: 48°14'W

Temperature observation period.: 1985-1994 (10)

Rainfall observation period....: 1983-1994 (12)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	23.06	27.78	18.33	32.78	10.00	185.4	108.22
Feb.	23.34	27.78	18.89	40.00	10.00	190.5	96.94
Mar.	23.06	27.78	18.33	31.11	11.11	202.4	99.68
Apr.	22.22	27.22	17.22	35.00	7.78	145.5	83.72
May.	20.56	26.11	15.00	36.11	7.22	13.7	67.90
Jun.	20.00	26.11	13.89	35.00	7.22	4.6	60.62
Jul.	19.72	26.11	13.33	37.22	6.11	4.3	60.37
Aug.	21.67	28.33	15.00	37.78	7.22	1.0	80.94
Sep.	23.06	28.89	17.22	37.22	6.11	36.3	94.93
Oct.	23.89	29.44	18.33	38.89	7.22	93.2	113.30
Nov.	23.34	27.78	18.89	33.89	6.11	153.7	106.73
Dec.	23.06	27.22	18.89	32.22	11.11	298.7	108.22
Year	22.25	27.55	16.94	35.60	8.10	1329	1081.6

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	617
Compensated thermicity index.....(Itc):	617
Simple continentality index.....(Ic):	4.2
Diurnality index.....(Id):	13.3
Annual ombrothermic index.....(Io):	4.98
Monthly dry ombrothermic index.....(Iod1):	0.05
Bimonthly dry ombrothermic index.....(Iod2):	0.13
Threemonthly dry ombrothermic index.....(Iod3):	0.16
Fourmonthly dry ombrothermic index.....(Iod4):	0.29
Annual ombro-evaporation index.....(Ioe):	1.23
Annual positive temperature.....(Tp):	2670
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	614
Positive precipitation.....(Pp):	1329

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	6	1	1	4	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - High Euhyperoceanic

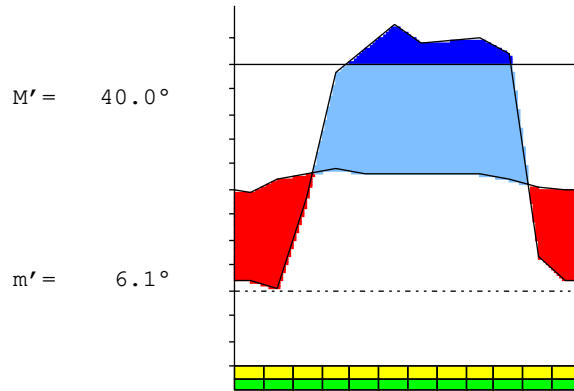
Bioclimate(Variant): TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)

Bioclimatic Belt...: LOW THERMOTROPICAL UPPER SUBHUMID

UBERLANDIA (BRAZIL)

922 m

P= 1329 18° 53'S 48° 14'W 10/12 y.
 T= 22.2 ° Ic= 4.2 Tp= 2670 Tn= 0
 m= 13.3 ° M= 26.1 ° Itc= 617 Io= 5.0



TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 LOW THERMOTROPICAL UPPER SUBHUMID

WATER INDEX CARD UBERLANDIA (BRAZIL)
 Altitude: 922 m. Latitude: 18° 53'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	19.7	60	4	0	0	4	56	0	10	-0.9
Aug.	21.7	81	1	0	0	1	80	0	5	-0.9
Sep.	23.1	95	36	0	0	36	59	0	2	-0.6
Oct.	23.9	113	93	0	0	93	20	0	1	-0.1
Nov.	23.3	107	154	47	47	107	0	0	1	0.4
Dec.	23.1	108	299	53	100	108	0	137	69	1.7
Jan.	23.1	108	185	0	100	108	0	77	73	0.7
Feb.	23.3	97	191	0	100	97	0	94	83	0.9
Mar.	23.1	100	202	0	100	100	0	103	93	1.0
Apr.	22.2	84	146	0	100	84	0	62	77	0.7
May.	20.6	68	14	-54	46	68	0	0	39	-0.7
Jun.	20.0	61	5	-46	0	50	10	0	19	-0.9
Year	22.2	1082	1329	*	*	857	225	473	473	*

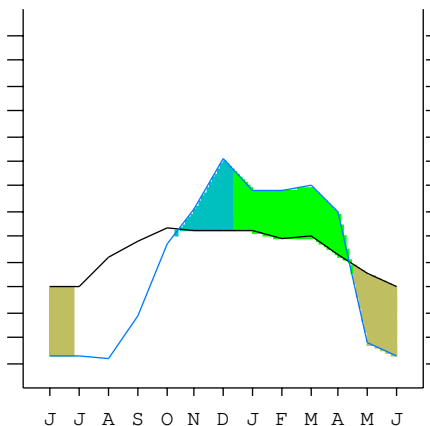
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

UBERLANDIA (BRAZIL)

18°53'S 48°14'W 922 m 10/12 y.

T= 22.2 Ic= 4.2 TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 m= 13.3 Tp= 2670 LOW THERMOTROPICAL
 M= 26.1 Tn= 0 UPPER SUBHUMID
 M' = 40.0 Itc= 617
 m' = 6.1 Io= 5.0
 P= 1329 mm ———
 PE= 1082 mm ———

Imbibing	9 Oct.
Saturation	9 Dec.
Reserve Use	16 Apr.
Deficit	25 Jun.



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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 [A4.2b.6a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant .: SUBXEROPHYTIC
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic ClassificationTrps (Sxe).Ttr.Shu.Eho

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 958
 Coldest semester of the year.....(Psw): 372
 Warmest four months period of the year.....(Pcm1): 582
 Following warmest four months period.....(Pcm2): 724
 Positive precipitation dryest 3 months.....(Ppd): 10
 Positive precipitation dryest 2 months.....(Ppd2): 5
 Positive precipitation dryest 1 month.....(Ppd1): 1
 Positive precipitation warmest 3 months.....(Pps): 283
 Positive precipitation warmest 2 months.....(Pps2): 247
 Positive precipitation warmest 1 month.....(Pps1): 93
 Positive precipitation coldest 3 months.....(Ppw): 23
 Positive precipitation coldest 2 months.....(Ppw2): 9
 Positive precipitation coldest 1 month.....(Ppw1): 4

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	9	283	674	361

Tropical rainfall rhythms: 1 > 2 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 23.9
 Average coldest month [T].....(Tmin): 19.7
 Maximum temp. warmest month [M].....(Tmmax): 29.4
 Minimum temp. coldest month [m].....(Tmmin): 13.3
 Absolute Max.temp. warmest month [M'].....(Tamax): 40.0
 Absolute Min.temp. coldest month [m'].....(Tamin): 6.1
 First warmest contrasted month [M].....(Tcmax): 28.3 (8)
 First coldest contrasted month [m].....(Tcmin): 15.0 (8)
 Dry station temperature.....(Td): 614
 Positive temperature dryest 3 months.....(Tpd): 614
 Positive temperature dryest 2 months.....(Tpd2): 414
 Positive temperature dryest 1 month.....(Tpd1): 217
 Positive temperature warmest 3 months.....(Tps): 703
 Positive temperature warmest 2 months.....(Tps2): 472
 Positive temperature warmest 1 month.....(Tps1): 239
 Positive temperature coldest 3 months.....(Tpw): 603
 Positive temperature coldest 2 months.....(Tpw2): 397
 Positive temperature coldest 1 month.....(Tpw1): 197

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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): 0.81
 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)	2987	1854	1905	2024	1455	137	46	43	10	363	932	1537
Tp	231	231	233	231	222	206	200	197	217	231	239	233
Io (Iom)	13.0	8.04	8.16	8.78	6.55	0.67	0.23	0.22	0.05	1.57	3.90	6.59
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	6746 / 695			3616 / 658			99 / 614			2832 / 703		
Io (Iot)	9.712			5.492			0.161			4.029		
Semesters	December-May						June-November					
Pp(x10)/Tp	10362 / 1353						2931 / 1317					
Io (Iosm)	7.659						2.226					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 13293/2670=4.98 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2987	1854	1905	2024	1455	137	46	43	10	363	932	1537
Tp [T*10]	231	231	233	231	222	206	200	197	217	231	239	233
Iom [Pp/Tp]	\$\$	804	816	878	655	67	23	22	5	157	390	659
Avm [200-Iom]	***	***	***	***	***	133	177	178	195	43	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	6746 / 695			3616 / 658			99 / 614			2832 / 703		
Iot [Pp/Tp]	971			549			16			403		
Avs E[Avm<200]	***			***			551			***		
Lower ultrahyperarid [1]						Upper ultrahyperarid [1]						
Lower hyperarid [2]						Weak lower arid [1]						
Strong upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	4.17
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		1.50
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		0.68
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.57
+ Hyperoceanic (0<CI<0.6)		
Rainfall Index of Lang (1925) [R=P/T]		59.75
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		41.22
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]		192.92
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P]		1.67
+ Humid (2>DR>0)		
Aridity Index of UNEP [I=P/PE]		1.23
+ Humid (I>0.65)		
Potencial Erosion I of Fournier (1960) [K=Pi ² /P].....		67.12
+ Low (60<K<90)		

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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: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.77	0.78	0.85	0.60	0.05	0.01	0.01	0.00	0.13	0.35	0.62	1.30
T-E ratio	10.38	10.50	10.38	10.00	9.25	9.00	8.87	9.75	10.38	10.75	10.50	10.38
Precipitation-effectiveness: 54.65						Temperature-efficiency: 120.14						
Moisture Index [MI=100*(P-PE)/PE]												
+ B1.Humid low-humid (20<MI<40)												
Index of dryness [DI=100*d/PE]												
+ Moderate deficit (16.7<DI<33.3)												
Index of humidity [HI=100*s/PE]												
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE												
+ Forth mesothermic (997<PE<1440)												

