

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

SENA MADUREIRA (BRAZIL)

Altitude: 135 m.

Latitude: 9°4'S Longitude: 68°39'W

Temperature observation period.: 1979-1994 (16)

Rainfall observation period....: 1977-1994 (18)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	26.95	33.33	20.56	37.22	16.11	28.4	150.23
Feb.	26.95	33.33	20.56	37.22	15.00	28.7	133.54
Mar.	26.67	32.78	20.56	37.22	15.56	25.9	143.71
Apr.	26.39	32.78	20.00	37.22	13.89	23.9	129.83
May.	25.83	32.22	19.44	36.67	12.22	10.4	122.29
Jun.	25.28	32.22	18.33	36.67	7.22	5.6	108.40
Jul.	25.00	32.78	17.22	37.22	8.33	2.8	107.21
Aug.	26.11	33.89	18.33	37.22	5.00	3.8	128.56
Sep.	26.95	33.89	20.00	37.22	7.78	10.2	139.10
Oct.	27.23	33.89	20.56	37.22	13.89	17.8	149.82
Nov.	27.23	33.89	20.56	37.78	13.89	19.1	148.41
Dec.	27.50	33.89	21.11	37.22	17.22	29.7	156.42
Year	26.51	33.24	19.77	37.17	12.18	206	1617.5

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	765
Compensated thermicity index.....(Itc):	765
Simple continentality index.....(Ic):	2.5
Diurnality index.....(Id):	15.6
Annual ombrothermic index.....(Io):	0.65
Monthly dry ombrothermic index.....(Iod1):	0.11
Bimonthly dry ombrothermic index.....(Iod2):	0.13
Three monthly dry ombrothermic index.....(Iod3):	0.16
Four monthly dry ombrothermic index.....(Iod4):	0.22
Annual ombro-evaporation index.....(Ioe):	1.85
Annual positive temperature.....(Tp):	3181
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	764
Positive precipitation.....(Pp):	206

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	0	3	9	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - Low Ultrahyperoceanic

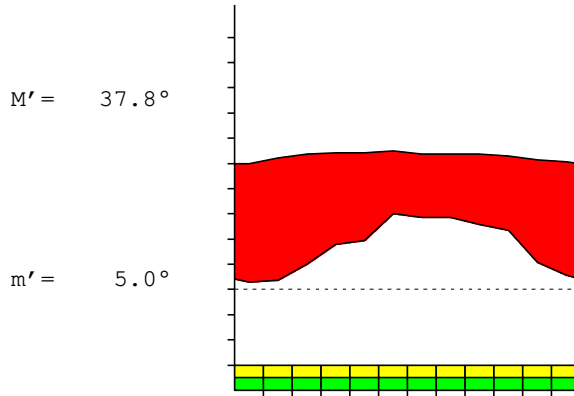
Bioclimate(Variant): TROPICAL DESERTIC (ARID)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW ARID

SENA MADUREIRA (BRAZIL)

135 m

P= 206 9° 4'S 68° 39'W 16/18 y.  
 T= 26.5° Ic= 2.5 Tp= 3181 Tn= 0  
 m= 17.2° M= 32.8° Itc= 765 Io= 0.6



TROPICAL DESERTIC (ARID)  
 UPPER INFRATROPICAL LOW ARID

WATER INDEX CARD SENNA MADUREIRA (BRAZIL)  
 Altitude: 135 m. Latitude: 9° 4'S

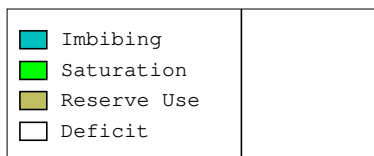
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	25.0	107	3	0	0	3	104	0	0	-0.9
Aug.	26.1	129	4	0	0	4	125	0	0	-0.9
Sep.	27.0	139	10	0	0	10	129	0	0	-0.9
Oct.	27.2	150	18	0	0	18	132	0	0	-0.8
Nov.	27.2	148	19	0	0	19	129	0	0	-0.8
Dec.	27.5	156	30	0	0	30	127	0	0	-0.8
Jan.	27.0	150	28	0	0	28	122	0	0	-0.8
Feb.	27.0	134	29	0	0	29	105	0	0	-0.7
Mar.	26.7	144	26	0	0	26	118	0	0	-0.8
Apr.	26.4	130	24	0	0	24	106	0	0	-0.8
May.	25.8	122	10	0	0	10	112	0	0	-0.9
Jun.	25.3	108	6	0	0	6	103	0	0	-0.9
Year	26.5	1618	206	*	*	206	1411	0	0	*

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

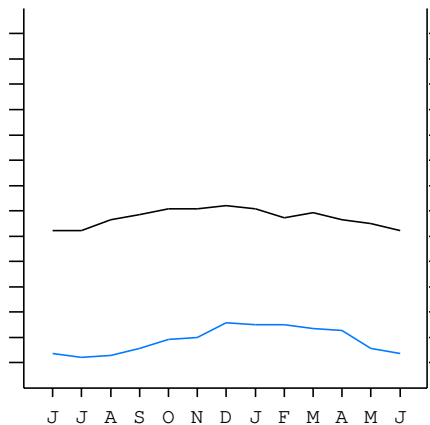
SENA MADUREIRA (BRAZIL)

9°4'S 68°39'W 135 m 16/18 y.

T= 26.5 Ic= 2.5 TROPICAL DESERTIC (ARID)  
 m= 17.2 Tp= 3181 UPPER INFRATROPICAL  
 M= 32.8 Tn= 0 LOW ARID  
 M' = 37.8 Itc= 765  
 m' = 5.0 Io= 0.6  
 P= 206 mm  
 PE= 1618 mm



All over the year,  
 there is hydric deficit



SENA MADUREIRA (BRAZIL)

Latitude: 9°4'S Longitude: 68°39'W Altitude: 135 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental 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 [A2.1a.3b]  
 + Macrobioclimate .....: A. TROPICAL  
 + Bioclimate .....: 2. DESERTIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 1. INFRATROPICAL  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 3. ARID  
 + Ombrothermic subtype : b. LOW  
 Bioclimatic Classification .....: Trps.Itr.Ari

SENA MADUREIRA (BRAZIL)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 134  
 Coldest semester of the year.....(Psw): 72  
 Warmest four months period of the year.....(Pcm1): 77  
 Following warmest four months period.....(Pcm2): 107  
 Positive precipitation dryest 3 months.....(Ppd): 12  
 Positive precipitation dryest 2 months.....(Ppd2): 7  
 Positive precipitation dryest 1 month.....(Ppd1): 3  
 Positive precipitation warmest 3 months.....(Pps): 67  
 Positive precipitation warmest 2 months.....(Pps2): 49  
 Positive precipitation warmest 1 month.....(Pps1): 30  
 Positive precipitation coldest 3 months.....(Ppw): 19  
 Positive precipitation coldest 2 months.....(Ppw2): 8  
 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	12	47	86	60

Tropical rainfall rhythms: 1 > 2 > 4 > 3

SENA MADUREIRA (BRAZIL)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.5  
 Average coldest month [T].....(Tmin): 25.0  
 Maximum temp. warmest month [M].....(Tmmax): 33.9  
 Minimum temp. coldest month [m].....(Tmmin): 17.2  
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.8  
 Absolute Min.temp. coldest month [m'].....(Tamin): 5.0  
 First warmest contrasted month [M].....(Tcmax): 32.8 (7)  
 First coldest contrasted month [m].....(Tcmin): 17.2 (7)  
 Dry station temperature.....(Td): 764  
 Positive temperature dryest 3 months.....(Tpd): 764  
 Positive temperature dryest 2 months.....(Tpd2): 511  
 Positive temperature dryest 1 month.....(Tpd1): 250  
 Positive temperature warmest 3 months.....(Tps): 820  
 Positive temperature warmest 2 months.....(Tps2): 547  
 Positive temperature warmest 1 month.....(Tps1): 275  
 Positive temperature coldest 3 months.....(Tpw): 761  
 Positive temperature coldest 2 months.....(Tpw2): 503  
 Positive temperature coldest 1 month.....(Tpw1): 250

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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

SENA MADUREIRA (BRAZIL)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 7.84  
 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)	297	284	287	259	239	104	56	28	38	102	178	191
Tp	275	270	270	267	264	258	253	250	261	270	272	272
Io (Iom)	1.08	1.05	1.06	0.97	0.91	0.40	0.22	0.11	0.15	0.38	0.65	0.70
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	868 / 814			602 / 789			122 / 764			471 / 814		
Io (Iot)	1.066			0.763			0.160			0.579		
Semesters	December-May						June-November					
Pp(x10)/Tp	1470 / 1603						593 / 1578					
Io (Iosm)	0.917						0.376					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 2063/3181=0.65 Weak lower arid (6) [1631]

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	297	284	287	259	239	104	56	28	38	102	178	191
Tp [T*10]	275	270	270	267	264	258	253	250	261	270	272	272
Iom [Pp/Tp]	108	105	106	97	91	40	22	11	15	38	65	70
Avm [200-Iom]	92	95	94	103	109	160	178	189	185	162	135	130
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	868 / 814			602 / 789			122 / 764			471 / 814		
Iot [Pp/Tp]	107			76			16			58		
Avs E[Avm<200]	280			372			552			427		
Upper ultrahyperarid [3]						Lower hyperarid [1]						
Upper hyperarid [1]						Strong lower arid [1]						
Weak lower arid [2]						Strong upper arid [2]						
Weak upper arid [2]						Strong lower semiarid [4]						

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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] .....		6.57
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		-0.99
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		0.62
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T] .....		7.78
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		5.65
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		24.21
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		12.85
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE] .....		0.13
+ Arid (0.2>Im>0.05)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		4.28
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

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

- + Climate .....
- + Region .....
- + Thermic type: 1. Megathermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.09	0.09	0.08	0.07	0.03	0.01	0.01	0.01	0.03	0.05	0.06	0.09
T-E ratio	12.13	12.13	12.00	11.88	11.62	11.38	11.25	11.75	12.13	12.25	12.25	12.38
Precipitation-effectiveness: 6.14						Temperature-efficiency .....						143.14
Moisture Index [MI=100*(P-PE)/PE] .....												-87.25
+ E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE] .....												87.24
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE .....												1617.53
+ Megathermic (PE>1440)												

