

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

SANTAREM (BRAZIL)

Altitude: 73 m.

Latitude: 2°25'S Longitude: 54°42'W

Temperature observation period.: 1973-1994 (22)

Rainfall observation period....: 1972-1994 (23)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	26.39	30.00	22.78	35.56	20.00	172.7	135.87
Feb.	26.11	29.44	22.78	33.33	20.00	276.9	117.94
Mar.	26.11	29.44	22.78	32.22	20.56	335.3	130.48
Apr.	26.11	29.44	22.78	32.78	20.56	327.7	126.72
May.	26.11	29.44	22.78	34.44	20.56	287.0	129.23
Jun.	26.11	30.00	22.22	34.44	19.44	175.3	125.46
Jul.	26.12	30.56	21.67	35.00	18.33	104.1	130.67
Aug.	26.95	31.67	22.22	35.56	18.89	43.2	144.67
Sep.	27.78	32.78	22.78	37.22	20.00	38.1	147.20
Oct.	27.78	32.78	22.78	36.11	20.56	48.3	151.58
Nov.	27.78	32.78	22.78	36.11	20.56	58.4	148.66
Dec.	27.23	31.67	22.78	35.56	20.00	104.1	148.41
Year	26.72	30.83	22.59	34.86	19.95	1971	1636.9

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	789
Compensated thermicity index.....(Itc):	789
Simple continentality index.....(Ic):	1.7
Diurnality index.....(Id):	10.0
Annual ombrothermic index.....(Io):	6.15
Monthly dry ombrothermic index.....(Iod1):	1.37
Bimonthly dry ombrothermic index.....(Iod2):	1.49
Three monthly dry ombrothermic index.....(Iod3):	1.57
Four monthly dry ombrothermic index.....(Iod4):	2.15
Annual ombro-evaporation index.....(Ioe):	0.31
Annual positive temperature.....(Tp):	3206
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	825
Positive precipitation.....(Pp):	1971

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	6	3	3	0	0

Latitudinal Belt...: Equatorial

Continentalty.....: Hyperoceanic - High Ultrahyperoceanic

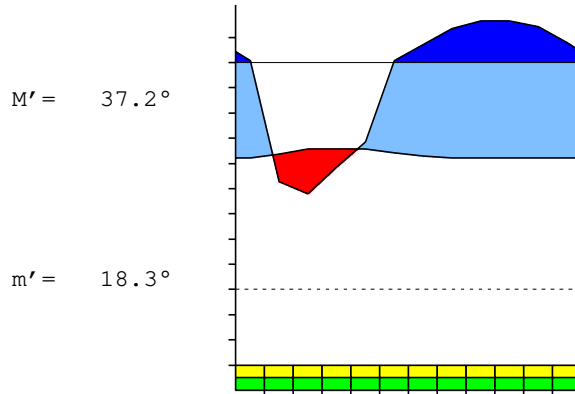
Bioclimate(Variant): TROPICAL PLUVISEASONAL (PLUVISEROTIN,MESOPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW HUMID

SANTAREM (BRAZIL)

73 m

P= 1971 2° 25' S 54° 42' W 22/23 y.
 T= 26.7° Ic= 1.7 Tp= 3206 Tn= 0
 m= 22.8° M= 29.4° Itc= 789 Io= 6.1



TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 UPPER INFRATROPICAL LOW HUMID

WATER INDEX CARD

SANTAREM (BRAZIL)

Altitude: 73 m.

Latitude: 2° 25' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	26.1	131	104	-27	73	131	0	0	53	-0.2
Aug.	27.0	145	43	-73	0	117	28	0	26	-0.7
Sep.	27.8	147	38	0	0	38	109	0	13	-0.7
Oct.	27.8	152	48	0	0	48	103	0	7	-0.6
Nov.	27.8	149	58	0	0	58	90	0	3	-0.6
Dec.	27.2	148	104	0	0	104	44	0	2	-0.2
Jan.	26.4	136	173	37	37	136	0	0	1	0.2
Feb.	26.1	118	277	63	100	118	0	96	48	1.3
Mar.	26.1	130	335	0	100	130	0	205	127	1.5
Apr.	26.1	127	328	0	100	127	0	201	164	1.5
May.	26.1	129	287	0	100	129	0	158	161	1.2
Jun.	26.1	125	175	0	100	125	0	50	105	0.3
Year	26.7	1637	1971	*	*	1262	375	709	709	*

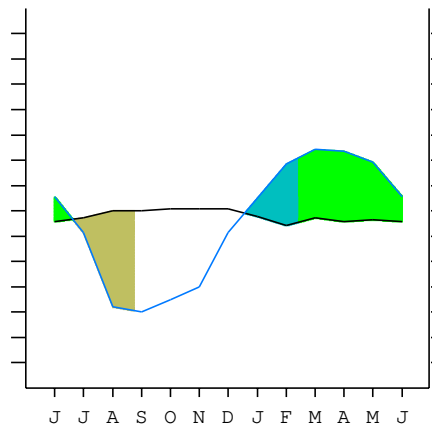
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

SANTAREM (BRAZIL)

2°25' S 54°42' W 73 m 22/23 y.

T= 26.7 Ic= 1.7 TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 m= 22.8 Tp= 3206 UPPER INFRATROPICAL
 M= 29.4 Tn= 0 LOW HUMID
 M' = 37.2 Itc= 789
 m' = 18.3 Io= 6.1
 P= 1971 mm ————
 PE= 1637 mm ————

Imbibing	17 Dec.
Saturation	12 Feb.
Reserve Use	20 Jun.
Deficit	22 Aug.



SANTAREM (BRAZIL)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A1a]
 + Type: A. Hyperoceanic
 + Subtype: 1. Ultrahyperoceanic
 + Variant: a. High
 Thermic types [A1.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 1. Equatorial
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid
 Bioclimatic types [A4e.1a.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant ..: e. PLUVISEROTIN, MESOPHYTIC
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Trde (Pse).Itr.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 465
 Coldest semester of the year.....(Psw): 1506
 Warmest four months period of the year.....(Pcm1): 249
 Following warmest four months period.....(Pcm2): 1113
 Positive precipitation dryest 3 months.....(Ppd): 130
 Positive precipitation dryest 2 months.....(Ppd2): 81
 Positive precipitation dryest 1 month.....(Ppd1): 38
 Positive precipitation warmest 3 months.....(Pps): 145
 Positive precipitation warmest 2 months.....(Pps2): 86
 Positive precipitation warmest 1 month.....(Pps1): 38
 Positive precipitation coldest 3 months.....(Ppw): 940
 Positive precipitation coldest 2 months.....(Ppw2): 612
 Positive precipitation coldest 1 month.....(Ppw1): 277

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	322	144	553	950

Tropical rainfall rhythms: 2 > 1 > 3 > 4

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.8
 Average coldest month [T].....(Tmin): 26.1
 Maximum temp. warmest month [M].....(Tmmax): 32.8
 Minimum temp. coldest month [m].....(Tmmin): 21.7
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.2
 Absolute Min.temp. coldest month [m'].....(Tamin): 18.3
 First warmest contrasted month [M].....(Tcmax): 32.8 (9)
 First coldest contrasted month [m].....(Tcmin): 22.8 (9)
 Dry station temperature.....(Td): 825
 Positive temperature dryest 3 months.....(Tpd): 825
 Positive temperature dryest 2 months.....(Tpd2): 547
 Positive temperature dryest 1 month.....(Tpd1): 278
 Positive temperature warmest 3 months.....(Tps): 833
 Positive temperature warmest 2 months.....(Tps2): 556
 Positive temperature warmest 1 month.....(Tps1): 278
 Positive temperature coldest 3 months.....(Tpw): 783
 Positive temperature coldest 2 months.....(Tpw2): 522
 Positive temperature coldest 1 month.....(Tpw1): 261

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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): 0.83
 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)	1041	1727	2769	3353	3277	2870	1753	1041	432	381	483	584
Tp	272	264	261	261	261	261	261	261	270	278	278	278
Io (Iom)	3.82	6.54	10.6	12.8	12.6	11.0	6.71	3.99	1.60	1.37	1.74	2.10
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	5537 / 797			9500 / 783			3226 / 792			1448 / 833		
Io (Iot)	6.945			12.13			4.074			1.737		
Semesters	December-May						June-November					
Pp(x10)/Tp	15037 / 1581						4674 / 1625					
Io (Iosm)	9.513						2.876					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 19711/3206=6.15 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1041	1727	2769	3353	3277	2870	1753	1041	432	381	483	584
Tp [T*10]	272	264	261	261	261	261	261	261	270	278	278	278
Iom [Pp/Tp]	382	654	\$\$\$	\$\$\$	\$\$\$	\$\$\$	671	399	160	137	174	210
Avm [200-Iom]	***	***	***	***	***	***	***	***	40	63	26	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	5537 / 797			9500 / 783			3226 / 792			1448 / 833		
Iot [Pp/Tp]	694			1213			407			174		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [1]							Strong upper semiarid [1]					
Weak upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 1.67
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 46.93
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: -0.80
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.92
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 73.78
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 53.69
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 325.83
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.36
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.20
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 57.04
 + 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	0.66	1.12	1.38	1.35	1.16	0.67	0.38	0.14	0.12	0.15	0.19	0.37
T-E ratio	11.88	11.75	11.75	11.75	11.75	11.75	11.75	12.13	12.50	12.50	12.50	12.25
Precipitation-effectiveness:	76.75					Temperature-efficiency: 144.26						
Moisture Index [MI=100*(P-PE)/PE]: 20.42 + B1.Humid low-humid (20<MI<40)												
Index of dryness [DI=100*d/PE]: 22.90 + Moderate deficit (16.7<DI<33.3)												
Index of humidity [HI=100*s/PE]: 43.32 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1636.90 + Megathermic (PE>1440)												

