

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

SAO BORJA (BRAZIL)

Altitude: 99 m.

Latitude: 28°39'S Longitude: 56°0'W

Temperature observation period.: 1957-1977 (21)

Rainfall observation period....: 1957-1977 (21)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	26.70	31.40	19.80	36.90	13.40	137.0	163.15
Feb.	26.30	31.40	19.50	36.20	13.60	131.0	135.56
Mar.	24.30	29.10	17.80	34.90	11.00	152.0	116.94
Apr.	21.00	24.40	14.90	32.90	7.50	156.0	74.33
May.	18.00	23.10	11.90	29.50	3.60	104.0	50.08
Jun.	15.70	20.60	10.10	28.50	1.60	101.0	33.93
Jul.	15.60	20.70	10.20	29.00	0.90	84.0	35.37
Aug.	15.90	21.00	10.00	31.00	2.10	100.0	39.02
Sep.	18.30	23.10	12.10	32.60	3.90	128.0	56.59
Oct.	21.10	25.90	13.70	33.40	7.20	138.0	87.83
Nov.	23.50	28.30	15.60	34.90	9.00	132.0	115.22
Dec.	25.70	30.40	18.20	35.80	11.60	136.0	151.05
Year	21.01	25.78	14.48	32.97	7.12	1499	1059.1

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	519
Compensated thermicity index.....(Itc):	519
Simple continentality index.....(Ic):	11.1
Diurnality index.....(Id):	12.7
Annual ombrothermic index.....(Io):	5.95
Monthly dry ombrothermic index.....(Iod1):	5.38
Bimonthly dry ombrothermic index.....(Iod2):	5.84
Three monthly dry ombrothermic index.....(Iod3):	6.04
Four monthly dry ombrothermic index.....(Iod4):	5.97
Annual ombro-evaporation index.....(Ioe):	1.23
Annual positive temperature.....(Tp):	2521
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	472
Positive precipitation.....(Pp):	1499

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	12	0	0	0	0

Latitudinal Belt...: Subtropical

Continentalty.....: Oceanic - High Semihyperoceanic

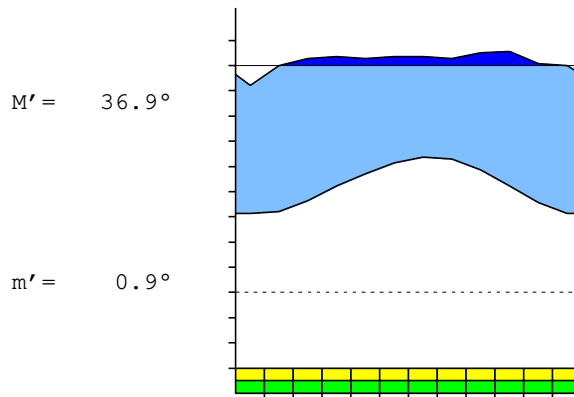
Bioclimate(Variant): TROPICAL PLUVIAL (HYGROPHYTIC)

Bioclimatic Belt...: UPPER THERMOTROPICAL UPPER SUBHUMID

SAO BORJA (BRAZIL)

99 m

P= 1499 28° 39'S 56° 0'W 21/21 y.
 T= 21.0° Ic= 11.1 Tp= 2521 Tn= 0
 m= 10.2° M= 20.7° Itc= 519 Io= 5.9



TROPICAL PLUVIAL (HYGROPHYTIC)
 UPPER THERMOTROPICAL UPPER SUBHUMID

WATER INDEX CARD

SAO BORJA (BRAZIL)

Altitude: 99 m.

Latitude: 28° 39'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	15.6	35	84	0	100	35	0	49	52	1.3
Aug.	15.9	39	100	0	100	39	0	61	57	1.5
Sep.	18.3	57	128	0	100	57	0	71	64	1.2
Oct.	21.1	88	138	0	100	88	0	50	57	0.5
Nov.	23.5	115	132	0	100	115	0	17	37	0.1
Dec.	25.7	151	136	-15	85	151	0	0	18	0.0
Jan.	26.7	163	137	-26	59	163	0	0	9	-0.1
Feb.	26.3	136	131	-5	54	136	0	0	5	0.0
Mar.	24.3	117	152	35	89	117	0	0	2	0.2
Apr.	21.0	74	156	11	100	74	0	71	37	1.0
May.	18.0	50	104	0	100	50	0	54	45	1.0
Jun.	15.7	34	101	0	100	34	0	67	56	1.9
Year	21.0	1059	1499	*	*	1059	0	440	440	*

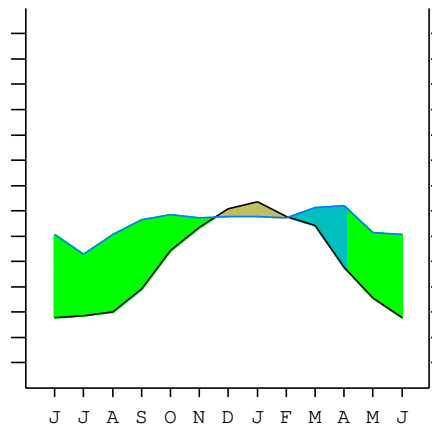
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

SAO BORJA (BRAZIL)

28°39'S 56°0'W 99 m 21/21 y.

T= 21.0 Ic= 11.1 TROPICAL PLUVIAL (HYGROPHYTIC)
 m= 10.2 Tp= 2521 UPPER THERMOTROPICAL
 M= 20.7 Tn= 0 UPPER SUBHUMID
 M' = 36.9 Itc= 519
 m' = 0.9 Io= 5.9
 P= 1499 mm ———
 PE= 1059 mm ———

Imbibing	4 Feb.
Saturation	4 Apr.
Reserve Use	16 Nov.
Deficit	



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B1a]
 + Type: B. Oceanic
 + Subtype: 1. Semihyperoceanic
 + Variant: a. High

Thermic types [A3.A2]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 2. Warm

Bioclimatic types [A5.2a.6a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 5. PLUVIAL
 + Bioclimatic variant ..:
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification: Trhd.Ttr.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 826
 Coldest semester of the year.....(Psw): 673
 Warmest four months period of the year.....(Pcm1): 556
 Following warmest four months period.....(Pcm2): 445
 Positive precipitation dryest 3 months.....(Ppd): 285
 Positive precipitation dryest 2 months.....(Ppd2): 184
 Positive precipitation dryest 1 month.....(Ppd1): 84
 Positive precipitation warmest 3 months.....(Pps): 404
 Positive precipitation warmest 2 months.....(Pps2): 268
 Positive precipitation warmest 1 month.....(Pps1): 137
 Positive precipitation coldest 3 months.....(Ppw): 285
 Positive precipitation coldest 2 months.....(Ppw2): 185
 Positive precipitation coldest 1 month.....(Ppw1): 84

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	285	398	404	412

Seasonal rainfall rhythms: F > S > P > W

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.7
 Average coldest month [T].....(Tmin): 15.6
 Maximum temp. warmest month [M].....(Tmmax): 31.4
 Minimum temp. coldest month [m].....(Tmmin): 10.0
 Absolute Max.temp. warmest month [M'].....(Tamax): 36.9
 Absolute Min.temp. coldest month [m'].....(Tamin): 0.9
 First warmest contrasted month [M].....(Tcmax): 28.3 (11)
 First coldest contrasted month [m].....(Tcmin): 15.6 (11)
 Dry station temperature.....(Td): 472
 Positive temperature dryest 3 months.....(Tpd): 472
 Positive temperature dryest 2 months.....(Tpd2): 315
 Positive temperature dryest 1 month.....(Tpd1): 156
 Positive temperature warmest 3 months.....(Tps): 787
 Positive temperature warmest 2 months.....(Tps2): 530
 Positive temperature warmest 1 month.....(Tps1): 267
 Positive temperature coldest 3 months.....(Tpw): 472
 Positive temperature coldest 2 months.....(Tpw2): 313
 Positive temperature coldest 1 month.....(Tpw1): 156

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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): 0.71
 Mediterranean index of January.....(Im1): 1.19
 Mediterranean index of January & February.....(Im2): 1.11
 Mediterranean index of December to February...(Im3): 1.11

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1360	1370	1310	1520	1560	1040	1010	840	1000	1280	1380	1320
Tp	257	267	263	243	210	180	157	156	159	183	211	235
Io (Iom)	5.29	5.13	4.98	6.26	7.43	5.78	6.43	5.38	6.29	6.99	6.54	5.62
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	4040 / 787			4120 / 633			2850 / 472			3980 / 629		
Io (Iot)	5.133			6.509			6.038			6.328		
Semesters	December-May						June-November					
Pp(x10)/Tp	8160 / 1420						6830 / 1101					
Io (Iosm)	5.746						6.203					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 14990/2521=5.95 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1360	1370	1310	1520	1560	1040	1010	840	1000	1280	1380	1320
Tp [T*10]	257	267	263	243	210	180	157	156	159	183	211	235
Iom [Pp/Tp]	529	513	498	626	743	578	643	538	629	699	654	562
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	4040 / 787			4120 / 633			2850 / 472			3980 / 629		
Iot [Pp/Tp]	513			651			604			633		
Avs E [Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 11.10
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 18.96
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 16.21
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 1.05
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 71.35
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 48.34
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 169.20
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.40
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.42
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 16.23
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 6. Termoaxeric (Axic warm)
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.50	0.48	0.60	0.67	0.46	0.47	0.39	0.47	0.57	0.58	0.52	0.51
T-E ratio	12.02	11.83	10.93	9.45	8.10	7.06	7.02	7.15	8.23	9.50	10.57	11.57
Precipitation-effectiveness:	62.17						Temperature-efficiency: 113.44					
Moisture Index [MI=100*(P-PE)/PE]: 41.54 + B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE]: 0.00 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 41.54 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1059.09 + Forth mesothermic (997<PE<1440)												

