

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

CAXIAS (BRAZIL)

Altitude: 77 m.

Latitude: 4°52'S Longitude: 43°21'W

Temperature observation period.: 1974-1994 (21)

Rainfall observation period....: 1974-1994 (21)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	27.50	32.78	22.22	40.00	20.00	216.2	152.12
Feb.	27.22	32.22	22.22	37.22	18.89	257.8	134.20
Mar.	27.22	32.22	22.22	35.00	20.00	298.2	146.91
Apr.	27.22	32.22	22.22	36.11	18.89	283.7	141.26
May.	27.22	32.22	22.22	35.00	17.22	85.9	144.09
Jun.	26.67	32.22	21.11	36.11	16.11	29.5	135.49
Jul.	26.39	32.78	20.00	36.11	13.89	9.9	130.32
Aug.	26.95	33.89	20.00	37.78	15.00	3.8	143.28
Sep.	28.61	35.00	22.22	38.89	16.11	18.5	152.39
Oct.	29.45	36.11	22.78	40.00	17.78	24.1	167.07
Nov.	28.89	35.00	22.78	38.89	18.89	47.0	159.27
Dec.	28.34	33.89	22.78	37.78	18.89	80.5	159.24
Year	27.64	33.38	21.90	37.41	17.64	1355	1765.6

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	804
Compensated thermicity index.....(Itc):	804
Simple continentality index.....(Ic):	3.1
Diurnality index.....(Id):	13.9
Annual ombrothermic index.....(Io):	4.09
Monthly dry ombrothermic index.....(Iod1):	0.14
Bimonthly dry ombrothermic index.....(Iod2):	0.26
Three monthly dry ombrothermic index.....(Iod3):	0.39
Four monthly dry ombrothermic index.....(Iod4):	0.57
Annual ombro-evaporation index.....(Ioe):	0.91
Annual positive temperature.....(Tp):	3317
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	820
Positive precipitation.....(Pp):	1355

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

Latitudinal Belt...: Equatorial

Continentalty.....: Hyperoceanic - Low Ultrahyperoceanic

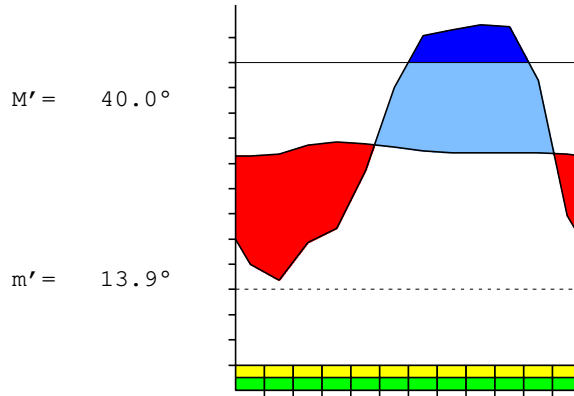
Bioclimate(Variant): TROPICAL PLUVISEASONAL (PLUVISEROTIN, SUBXEROPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW SUBHUMID

CAXIAS (BRAZIL)

77 m

P= 1355 4° 52' S 43° 21' W 21/21 y.
 T= 27.6° Ic= 3.1 Tp= 3317 Tn= 0
 m= 20.0° M= 32.8° Itc= 804 Io= 4.1



TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 UPPER INFRATROPICAL LOW SUBHUMID

WATER INDEX CARD

CAXIAS (BRAZIL)

Altitude: 77 m.

Latitude: 4° 52' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	26.4	130	10	0	0	10	120	0	15	-0.9
Aug.	27.0	143	4	0	0	4	139	0	8	-0.9
Sep.	28.6	152	19	0	0	19	134	0	4	-0.8
Oct.	29.5	167	24	0	0	24	143	0	2	-0.8
Nov.	28.9	159	47	0	0	47	112	0	1	-0.7
Dec.	28.3	159	81	0	0	81	79	0	0	-0.4
Jan.	27.5	152	216	64	64	152	0	0	0	0.4
Feb.	27.2	134	258	36	100	134	0	88	44	0.9
Mar.	27.2	147	298	0	100	147	0	151	98	1.0
Apr.	27.2	141	284	0	100	141	0	142	120	1.0
May.	27.2	144	86	-58	42	144	0	0	60	-0.4
Jun.	26.7	135	30	-42	0	71	64	0	30	-0.7
Year	27.6	1766	1355	*	*	974	792	381	381	*

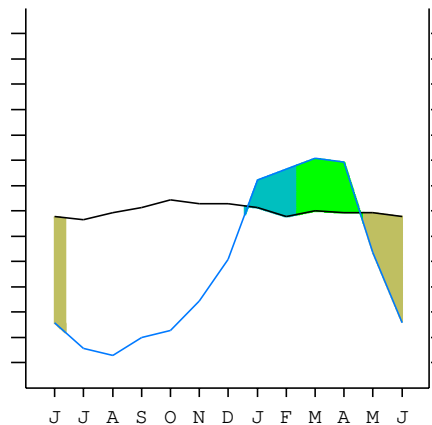
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CAXIAS (BRAZIL)

4°52' S 43°21' W 77 m 21/21 y.

T= 27.6 Ic= 3.1 TROPICAL PLUVISEASONAL (PLUVISEROTIN)
 m= 20.0 Tp= 3317 UPPER INFRATROPICAL
 M= 32.8 Tn= 0 LOW SUBHUMID
 M' = 40.0 Itc= 804
 m' = 13.9 Io= 4.1
 P= 1355 mm ———
 PE= 1766 mm ———

Imbibing	17 Dec.
Saturation	9 Feb.
Reserve Use	22 Apr.
Deficit	12 Jun.



CAXIAS (BRAZIL)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A1b]
 + Type: A. Hyperoceanic
 + Subtype: 1. Ultrahyperoceanic
 + Variant: b. Low

Thermic types [A1.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 1. Equatorial
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid

Bioclimatic types [A4e.1a.6b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant .: e. PLUVISEROTIN, SUBXEROPHYTIC
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Trde(Pse).Itr.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 644
 Coldest semester of the year.....(Psw): 711
 Warmest four months period of the year.....(Pcm1): 170
 Following warmest four months period.....(Pcm2): 1056
 Positive precipitation dryest 3 months.....(Ppd): 32
 Positive precipitation dryest 2 months.....(Ppd2): 14
 Positive precipitation dryest 1 month.....(Ppd1): 4
 Positive precipitation warmest 3 months.....(Pps): 90
 Positive precipitation warmest 2 months.....(Pps2): 71
 Positive precipitation warmest 1 month.....(Pps1): 24
 Positive precipitation coldest 3 months.....(Ppw): 43
 Positive precipitation coldest 2 months.....(Ppw2): 39
 Positive precipitation coldest 1 month.....(Ppw1): 10

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	43	89	554	667

Tropical rainfall rhythms: 2 > 1 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 29.5
 Average coldest month [T].....(Tmin): 26.4
 Maximum temp. warmest month [M].....(Tmmax): 36.1
 Minimum temp. coldest month [m].....(Tmmin): 20.0
 Absolute Max.temp. warmest month [M'].....(Tamax): 40.0
 Absolute Min.temp. coldest month [m'].....(Tamin): 13.9
 First warmest contrasted month [M].....(Tcmax): 33.9 (8)
 First coldest contrasted month [m].....(Tcmin): 20.0 (8)
 Dry station temperature.....(Td): 820
 Positive temperature dryest 3 months.....(Tpd): 820
 Positive temperature dryest 2 months.....(Tpd2): 533
 Positive temperature dryest 1 month.....(Tpd1): 270
 Positive temperature warmest 3 months.....(Tps): 870
 Positive temperature warmest 2 months.....(Tps2): 583
 Positive temperature warmest 1 month.....(Tps1): 295
 Positive temperature coldest 3 months.....(Tpw): 800
 Positive temperature coldest 2 months.....(Tpw2): 531
 Positive temperature coldest 1 month.....(Tpw1): 264

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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): 1.30
 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)	805	2162	2578	2982	2837	859	295	99	38	185	241	470
Tp	283	275	272	272	272	272	267	264	270	286	295	289
Io (Iom)	2.84	7.86	9.47	11.0	10.4	3.16	1.11	0.38	0.14	0.65	0.82	1.63
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	5545 / 831			6678 / 817			432 / 800			896 / 870		
Io (Iot)	6.676			8.178			0.540			1.030		
Semesters	December-May						June-November					
Pp(x10)/Tp	12223 / 1647						1328 / 1670					
Io (Iosm)	7.420						0.795					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 13551/3317=4.09 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	805	2162	2578	2982	2837	859	295	99	38	185	241	470
Tp [T*10]	283	275	272	272	272	272	267	264	270	286	295	289
Iom [Pp/Tp]	284	786	947	\$\$	\$\$	316	111	38	14	65	82	163
Avm [200-Iom]	***	***	***	***	***	***	89	162	186	135	118	37
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	5545 / 831			6678 / 817			432 / 800			896 / 870		
Iot [Pp/Tp]	668			818			54			103		
Avs E[Avm<200]	***			***			438			291		
Upper ultrahyperarid [1]						Upper hyperarid [1]						
Weak lower arid [2]						Weak upper arid [1]						
Strong lower semiarid [2]						Strong upper semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	3.06
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		40.92
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		6.28
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.17
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		49.03
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		36.00
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		149.91
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P]		2.04
+ Semiarid (3>DR>2)		
Aridity Index of UNEP [I=P/PE]		0.77
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		65.62
+ Low (60<K<90)		

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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	0.82	1.01	1.18	1.12	0.30	0.09	0.03	0.01	0.05	0.07	0.15	0.27	
T-E ratio	12.38	12.25	12.25	12.25	12.25	12.00	11.88	12.13	12.87	13.25	13.00	12.75	
Precipitation-effectiveness:	50.88					Temperature-efficiency							149.26
Moisture Index [MI=100*(P-PE)/PE]	-23.25												
+ C1.Subhumid dry (-33.3<MI<0)													
Index of dryness [DI=100*d/PE]	44.85												
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE]	21.60												
+ Strong surplus (20<HI)													
Potential Evapotranspiration PE	1765.64												
+ Megathermic (PE>1440)													

