

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

ALTAMIRA (BRAZIL)

Altitude: 74 m.

Latitude: 3°12'S Longitude: 51°11'W

Temperature observation period.: 1967-1990 (24)

Rainfall observation period....: 1967-1990 (24)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	25.60	30.20	22.00	34.90	18.90	302.0	124.48
Feb.	25.40	29.90	22.00	39.60	18.10	304.0	108.36
Mar.	25.40	29.90	22.30	34.00	18.40	317.0	119.89
Apr.	25.60	30.10	22.30	35.00	18.40	317.0	119.73
May.	25.80	30.50	22.30	33.70	12.00	216.0	125.54
Jun.	25.70	30.90	21.50	33.90	16.80	110.0	120.21
Jul.	25.60	31.20	20.80	34.90	13.90	79.0	122.10
Aug.	26.20	32.00	20.40	35.10	10.00	131.0	133.90
Sep.	26.80	32.40	21.70	35.60	17.40	39.0	137.90
Oct.	27.00	32.40	22.20	35.60	17.60	48.0	145.08
Nov.	26.90	31.80	22.50	36.10	18.60	79.0	141.48
Dec.	26.40	31.20	22.40	35.10	17.90	469.0	138.90
Year	26.03	31.04	21.87	35.29	16.50	2411	1537.6

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	779
Compensated thermicity index.....(Itc):	779
Simple continentality index.....(Ic):	1.6
Diurnality index.....(Id):	11.6
Annual ombrothermic index.....(Io):	7.72
Monthly dry ombrothermic index.....(Iod1):	1.46
Bimonthly dry ombrothermic index.....(Iod2):	1.62
Three monthly dry ombrothermic index.....(Iod3):	2.06
Four monthly dry ombrothermic index.....(Iod4):	2.78
Annual ombro-evaporation index.....(Ioe):	0.54
Annual positive temperature.....(Tp):	3124
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	807
Positive precipitation.....(Pp):	2411

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	8	2	2	0	0

Latitudinal Belt...: Equatorial

Continentality.....: Hyperoceanic - High Ultrahyperoceanic

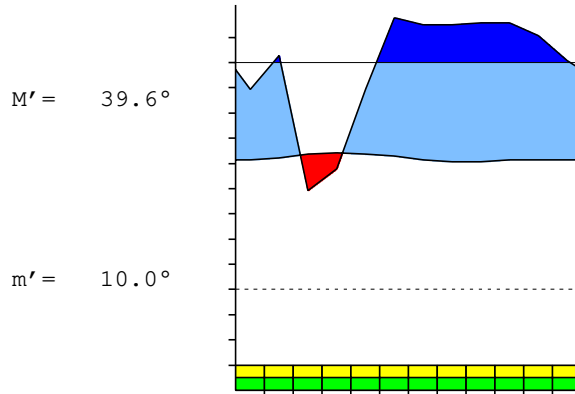
Bioclimate(Variant): TROPICAL PLUVISEASONAL (MESOPHYTIC)

Bioclimatic Belt...: UPPER INFRATROPICAL LOW HUMID

ALTAMIRA (BRAZIL)

74 m

P= 2411 3° 12'S 51° 11'W 24/24 y.
 T= 26.0° Ic= 1.6 Tp= 3124 Tn= 0
 m= 22.0° M= 29.9° Itc= 779 Io= 7.7



TROPICAL PLUVISEASONAL (MESOPHYTIC)
 UPPER INFRATROPICAL LOW HUMID

WATER INDEX CARD

ALTAMIRA (BRAZIL)

Altitude: 74 m.

Latitude: 3° 12'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	25.6	122	79	-43	47	122	0	0	35	-0.3
Aug.	26.2	134	131	-3	44	134	0	0	18	0.0
Sep.	26.8	138	39	-44	0	83	55	0	9	-0.7
Oct.	27.0	145	48	0	0	48	97	0	4	-0.6
Nov.	26.9	141	79	0	0	79	62	0	2	-0.4
Dec.	26.4	139	469	100	100	139	0	230	116	2.3
Jan.	25.6	124	302	0	100	124	0	178	147	1.4
Feb.	25.4	108	304	0	100	108	0	196	171	1.8
Mar.	25.4	120	317	0	100	120	0	197	184	1.6
Apr.	25.6	120	317	0	100	120	0	197	191	1.6
May.	25.8	126	216	0	100	126	0	90	141	0.7
Jun.	25.7	120	110	-10	90	120	0	0	70	0.0
Year	26.0	1538	2411	*	*	1323	215	1088	1088	*

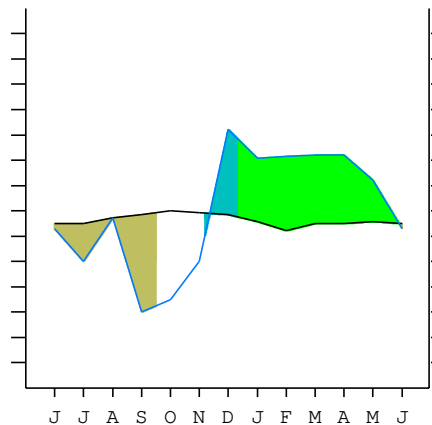
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

ALTAMIRA (BRAZIL)

3°12'S 51°11'W 74 m 24/24 y.

T= 26.0 Ic= 1.6 TROPICAL PLUVISEASONAL (MESOPHYTIC)
 m= 22.0 Tp= 3124 UPPER INFRATROPICAL
 M= 29.9 Tn= 0 LOW HUMID
 M' = 39.6 Itc= 779
 m' = 10.0 Io= 7.7
 P= 2411 mm ————
 PE= 1538 mm ————

Imbibing	5 Nov.
Saturation	10 Dec.
Reserve Use	27 May.
Deficit	14 Sep.



ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

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 [A4.1a.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant .:
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Trde.Itr.Hum

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 845
 Coldest semester of the year.....(Psw): 1566
 Warmest four months period of the year.....(Pcm1): 635
 Following warmest four months period.....(Pcm2): 1240
 Positive precipitation dryest 3 months.....(Ppd): 166
 Positive precipitation dryest 2 months.....(Ppd2): 87
 Positive precipitation dryest 1 month.....(Ppd1): 39
 Positive precipitation warmest 3 months.....(Pps): 166
 Positive precipitation warmest 2 months.....(Pps2): 127
 Positive precipitation warmest 1 month.....(Pps1): 48
 Positive precipitation coldest 3 months.....(Ppw): 923
 Positive precipitation coldest 2 months.....(Ppw2): 621
 Positive precipitation coldest 1 month.....(Ppw1): 304

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	320	166	1075	850

Tropical rainfall rhythms: 1 > 2 > 3 > 4

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.0
 Average coldest month [T].....(Tmin): 25.4
 Maximum temp. warmest month [M].....(Tmmax): 32.4
 Minimum temp. coldest month [m].....(Tmmin): 20.4
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.6
 Absolute Min.temp. coldest month [m'].....(Tamin): 10.0
 First warmest contrasted month [M].....(Tcmax): 32.0 (8)
 First coldest contrasted month [m].....(Tcmin): 20.4 (8)
 Dry station temperature.....(Td): 807
 Positive temperature dryest 3 months.....(Tpd): 807
 Positive temperature dryest 2 months.....(Tpd2): 538
 Positive temperature dryest 1 month.....(Tpd1): 268
 Positive temperature warmest 3 months.....(Tps): 807
 Positive temperature warmest 2 months.....(Tps2): 539
 Positive temperature warmest 1 month.....(Tps1): 270
 Positive temperature coldest 3 months.....(Tpw): 764
 Positive temperature coldest 2 months.....(Tpw2): 508
 Positive temperature coldest 1 month.....(Tpw1): 254

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

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

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.64
 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)	4690	3020	3040	3170	3170	2160	1100	790	1310	390	480	790
Tp	264	256	254	254	256	258	257	256	262	268	270	269
Io (Iom)	17.8	11.8	12.0	12.5	12.4	8.37	4.28	3.09	5.00	1.46	1.78	2.94
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	10750 / 774			8500 / 768			3200 / 775			1660 / 807		
Io (Iot)	13.89			11.07			4.129			2.057		
Semesters	December-May						June-November					
Pp(x10)/Tp	19250 / 1542						4860 / 1582					
Io (Iosm)	12.48						3.072					

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 24110/3124=7.72 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	4690	3020	3040	3170	3170	2160	1100	790	1310	390	480	790
Tp [T*10]	264	256	254	254	256	258	257	256	262	268	270	269
Iom [Pp/Tp]	\$\$	\$\$	\$\$	\$\$	\$\$	837	428	309	500	146	178	294
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	54	22	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	10750 / 774			8500 / 768			3200 / 775			1660 / 807		
Iot [Pp/Tp]	1389			1107			413			206		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [1]							Weak upper semiarid [1]					

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 1.60
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 28.33
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: -2.09
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.77
 + Oceanic (0.6<CI<1.1)
 Rainfall Index of Lang (1925) [R=P/T]: 92.61
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 66.91
 + Perhumid (Ia>60)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 380.52
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.08
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.57
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 91.23
 + Moderate (90<K<120)

ALTAMIRA (BRAZIL)

Latitude: 3°12'S Longitude: 51°11'W Altitude: 74 m

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	1.24	1.26	1.32	1.31	0.85	0.40	0.28	0.48	0.12	0.16	0.27	1.99
T-E ratio	11.52	11.43	11.43	11.52	11.61	11.57	11.52	11.79	12.06	12.15	12.10	11.88
Precipitation-effectiveness:	96.93					Temperature-efficiency: 140.58						
Moisture Index [MI=100*(P-PE)/PE]: 56.81 + B2.Humid medium-humid (40<MI<60)												
Index of dryness [DI=100*d/PE]: 13.96 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 70.76 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1537.57 + Megathermic (PE>1440)												

