

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

IVINHEMA (BRAZIL)

Altitude: 369 m.

Latitude: 22°19'S Longitude: 53°56'W

Temperature observation period.: 1973-1990 (18)

Rainfall observation period....: 1973-1990 (18)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	24.90	31.60	21.30	38.00	14.10	177.0	133.10
Feb.	24.90	32.00	20.80	36.50	12.80	166.0	115.74
Mar.	24.00	28.90	19.90	38.00	9.00	138.0	110.67
Apr.	22.40	30.00	17.20	35.60	8.20	102.0	84.91
May.	20.40	29.30	15.50	33.70	1.50	102.0	66.25
Jun.	18.60	25.00	13.80	33.50	3.00	72.0	49.63
Jul.	18.40	28.30	14.10	34.00	0.90	23.0	50.44
Aug.	20.10	27.80	14.50	36.80	0.00	86.0	66.49
Sep.	20.50	28.10	15.70	40.60	4.40	113.0	70.61
Oct.	21.90	28.00	18.80	38.60	8.40	267.0	91.87
Nov.	24.10	30.70	19.30	37.60	10.60	153.0	117.17
Dec.	24.90	31.00	20.60	37.80	9.80	213.0	134.26
Year	22.09	29.23	17.63	36.73	6.89	1612	1091.2

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	645
Compensated thermicity index.....(Itc):	645
Simple continentality index.....(Ic):	6.5
Diurnality index.....(Id):	14.2
Annual ombrothermic index.....(Io):	6.08
Monthly dry ombrothermic index.....(Iod1):	1.25
Bimonthly dry ombrothermic index.....(Iod2):	2.57
Three monthly dry ombrothermic index.....(Iod3):	3.17
Four monthly dry ombrothermic index.....(Iod4):	3.65
Annual ombro-evaporation index.....(Ioe):	1.43
Annual positive temperature.....(Tp):	2651
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	571
Positive precipitation.....(Pp):	1612

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	10	1	1	0	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - Low Euhyperoceanic

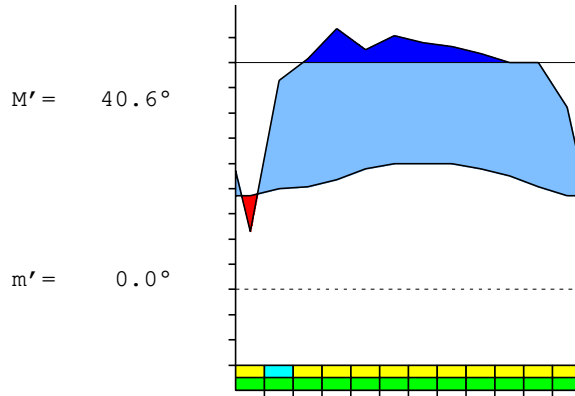
Bioclimate(Variant): TROPICAL PLUVIAL (SUBMESOPHYTIC)

Bioclimatic Belt...: LOW THERMOTROPICAL LOW HUMID

IVINHEMA (BRAZIL)

369 m

P= 1612 22° 19' S 53° 56' W 18/18 y.
 T= 22.1° Ic= 6.5 Tp= 2651 Tn= 0
 m= 14.1° M= 28.3° Itc= 645 Io= 6.1



TROPICAL PLUVIAL (SUBMESOPHYTIC)
 LOW THERMOTROPICAL LOW HUMID

WATER INDEX CARD IVINHEMA (BRAZIL)
 Altitude: 369 m. Latitude: 22° 19' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	18.4	50	23	-27	73	50	0	0	14	-0.5
Aug.	20.1	66	86	20	92	66	0	0	7	0.2
Sep.	20.5	71	113	8	100	71	0	34	21	0.6
Oct.	21.9	92	267	0	100	92	0	175	98	1.9
Nov.	24.1	117	153	0	100	117	0	36	67	0.3
Dec.	24.9	134	213	0	100	134	0	79	73	0.5
Jan.	24.9	133	177	0	100	133	0	44	58	0.3
Feb.	24.9	116	166	0	100	116	0	50	54	0.4
Mar.	24.0	111	138	0	100	111	0	27	41	0.2
Apr.	22.4	85	102	0	100	85	0	17	29	0.2
May.	20.4	66	102	0	100	66	0	36	32	0.5
Jun.	18.6	50	72	0	100	50	0	22	27	0.4
Year	22.1	1091	1612	*	*	1091	0	521	521	*

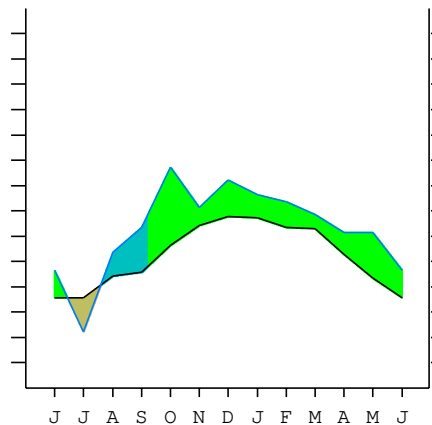
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

IVINHEMA (BRAZIL)

22°19' S 53°56' W 369 m 18/18 y.

T= 22.1 Ic= 6.5 TROPICAL PLUVIAL (SUBMESOPHYTIC)
 m= 14.1 Tp= 2651 LOW THERMOTROPICAL
 M= 28.3 Tn= 0 LOW HUMID
 M' = 40.6 Itc= 645
 m' = 0.0 Io= 6.1
 P= 1612 mm ———
 PE= 1091 mm ———

Imbibing	18 Jul.
Saturation	6 Sep.
Reserve Use	14 Jun.
Deficit	



IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A2b]
 + Type: A. Hyperoceanic
 + Subtype: 2. Euhyperoceanic
 + Variant: b. Low

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

Bioclimatic types [A5.2b.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 5. PLUVIAL
 + Bioclimatic variant .:
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Trhd.Ttr.Hum

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 949
 Coldest semester of the year.....(Psw): 663
 Warmest four months period of the year.....(Pcm1): 709
 Following warmest four months period.....(Pcm2): 414
 Positive precipitation dryest 3 months.....(Ppd): 181
 Positive precipitation dryest 2 months.....(Ppd2): 95
 Positive precipitation dryest 1 month.....(Ppd1): 23
 Positive precipitation warmest 3 months.....(Pps): 556
 Positive precipitation warmest 2 months.....(Pps2): 343
 Positive precipitation warmest 1 month.....(Pps1): 177
 Positive precipitation coldest 3 months.....(Ppw): 181
 Positive precipitation coldest 2 months.....(Ppw2): 95
 Positive precipitation coldest 1 month.....(Ppw1): 23

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	181	533	556	342

Tropical rainfall rhythms: 1 > 4 > 2 > 3

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.9
 Average coldest month [T].....(Tmin): 18.4
 Maximum temp. warmest month [M].....(Tmmax): 32.0
 Minimum temp. coldest month [m].....(Tmmin): 13.8
 Absolute Max.temp. warmest month [M'].....(Tamax): 40.6
 Absolute Min.temp. coldest month [m'].....(Tamin): 0.0
 First warmest contrasted month [M].....(Tcmax): 28.3 (7)
 First coldest contrasted month [m].....(Tcmin): 14.1 (7)
 Dry station temperature.....(Td): 571
 Positive temperature dryest 3 months.....(Tpd): 571
 Positive temperature dryest 2 months.....(Tpd2): 370
 Positive temperature dryest 1 month.....(Tpd1): 184
 Positive temperature warmest 3 months.....(Tps): 747
 Positive temperature warmest 2 months.....(Tps2): 498
 Positive temperature warmest 1 month.....(Tps1): 249
 Positive temperature coldest 3 months.....(Tpw): 571
 Positive temperature coldest 2 months.....(Tpw2): 370
 Positive temperature coldest 1 month.....(Tpw1): 184

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 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)								o				
Agelid.....[m' > 0] (Pf)	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

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.68
 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)	2130	1770	1660	1380	1020	1020	720	230	860	1130	2670	1530
Tp	249	249	249	240	224	204	186	184	201	205	219	241
Io (Iom)	8.55	7.11	6.67	5.75	4.55	5.00	3.87	1.25	4.28	5.51	12.2	6.35
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	5560 / 747			3420 / 668			1810 / 571			5330 / 665		
Io (Iot)	7.443			5.120			3.170			8.015		
Semesters	December-May						June-November					
Pp(x10)/Tp	8980 / 1415						7140 / 1236					
Io (Iosm)	6.346						5.777					

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 16120/2651=6.08 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2130	1770	1660	1380	1020	1020	720	230	860	1130	2670	1530
Tp [T*10]	249	249	249	240	224	204	186	184	201	205	219	241
Iom [Pp/Tp]	855	711	667	575	455	500	387	125	428	551	\$\$\$	635
Avm [200-Iom]	***	***	***	***	***	***	***	75	***	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	5560 / 747			3420 / 668			1810 / 571			5330 / 665		
Iot [Pp/Tp]	744			512			317			802		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [1]												

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 6.50
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 8.70
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 6.67
 + 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]: 72.97
 + Temperate warm (100>R>60)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 50.23
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 193.39
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 1.37
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.48
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 44.22
 + Very low (K<60)

IVINHEMA (BRAZIL)

Latitude: 22°19'S Longitude: 53°56'W Altitude: 369 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 3. Termoxeroteric (Mediterranean warm)
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.70	0.65	0.54	0.40	0.42	0.30	0.08	0.35	0.47	1.18	0.60	0.86
T-E ratio	11.20	11.20	10.80	10.08	9.18	8.37	8.28	9.05	9.23	9.85	10.85	11.20
Precipitation-effectiveness:	65.60					Temperature-efficiency: 119.29						
Moisture Index [MI=100*(P-PE)/PE]: 47.73 + 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]: 47.73 + Strong surplus (20<HI)												
Potential Evapotranspiration PE: 1091.17 + Forth mesothermic (997<PE<1440)												

