

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

CARVALHO (ANGOLA)

Altitude: 1100 m.

Latitude: 9°41'S Longitude: 20°25'E

Temperature observation period.: 1985-1994 (10)

Rainfall observation period....: 1989-1994 (6)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	22.78	27.78	17.78	32.22	14.44	238.0	98.20
Feb.	23.06	28.33	17.78	32.78	15.00	175.0	91.09
Mar.	23.06	28.33	17.78	32.22	13.33	245.1	98.61
Apr.	23.06	28.89	17.22	32.78	13.33	124.0	92.97
May.	21.94	29.44	14.44	32.78	7.78	11.9	83.14
Jun.	20.56	28.89	12.22	32.22	8.33	0.0	66.53
Jul.	20.83	29.44	12.22	31.67	8.33	0.0	71.74
Aug.	23.06	31.11	15.00	33.89	8.33	20.1	95.79
Sep.	23.89	30.56	17.22	34.44	13.33	94.0	103.13
Oct.	23.61	29.44	17.78	33.89	15.00	127.0	105.96
Nov.	22.78	27.78	17.78	32.22	15.00	240.0	95.47
Dec.	23.06	27.78	18.33	31.11	14.44	183.1	103.30
Year	22.64	28.98	16.30	32.69	12.22	1458	1105.9

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	638
Compensated thermicity index.....(Itc):	638
Simple continentality index.....(Ic):	3.3
Diurnality index.....(Id):	17.2
Annual ombrothermic index.....(Io):	5.37
Monthly dry ombrothermic index.....(Iod1):	No
Bimonthly dry ombrothermic index.....(Iod2):	No
Three monthly dry ombrothermic index.....(Iod3):	0.19
Four monthly dry ombrothermic index.....(Iod4):	1.57
Annual ombro-evaporation index.....(Ioe):	1.62
Annual positive temperature.....(Tp):	2717
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	633
Positive precipitation.....(Pp):	1458

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	1	0	4	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - Low Ultrahyperoceanic

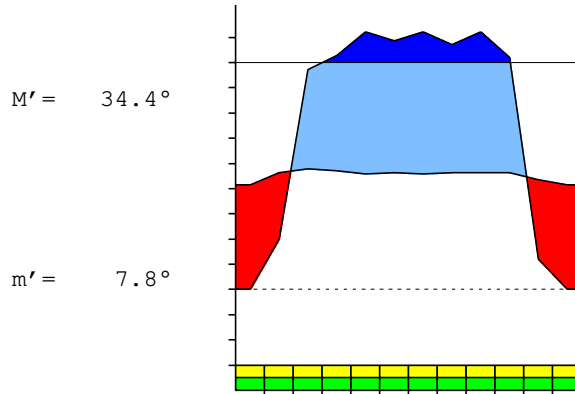
Bioclimate(Variant): TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)

Bioclimatic Belt...: LOW THERMOTROPICAL UPPER SUBHUMID

CARVALHO (ANGOLA)

1100 m

P= 1458 9° 41'S 20° 25'E 10/6 y.
 T= 22.6° Ic= 3.3 Tp= 2717 Tn= 0
 m= 12.2° M= 28.9° Itc= 638 Io= 5.4



TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 LOW THERMOTROPICAL UPPER SUBHUMID

WATER INDEX CARD CARVALHO (ANGOLA)
 Altitude: 1100 m. Latitude: 9° 41'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	20.8	72	0	0	0	0	72	0	9	-1.0
Aug.	23.1	96	20	0	0	20	76	0	5	-0.7
Sep.	23.9	103	94	0	0	94	9	0	2	0.0
Oct.	23.6	106	127	21	21	106	0	0	1	0.1
Nov.	22.8	95	240	79	100	95	0	66	33	1.5
Dec.	23.1	103	183	0	100	103	0	80	57	0.7
Jan.	22.8	98	238	0	100	98	0	140	98	1.4
Feb.	23.1	91	175	0	100	91	0	84	91	0.9
Mar.	23.1	99	245	0	100	99	0	146	119	1.4
Apr.	23.1	93	124	0	100	93	0	31	75	0.3
May.	21.9	83	12	-71	29	83	0	0	37	-0.8
Jun.	20.6	67	0	-29	0	29	38	0	19	-1.0
Year	22.6	1106	1458	*	*	912	194	547	547	*

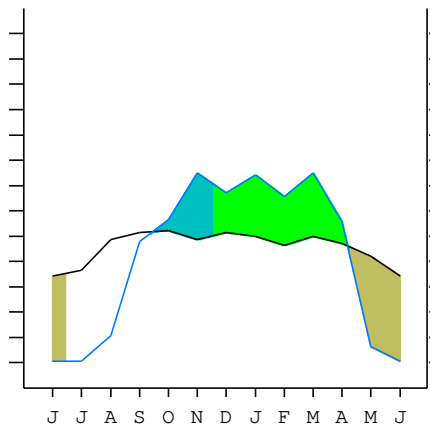
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CARVALHO (ANGOLA)

9°41'S 20°25'E 1100 m 10/6 y.

T= 22.6 Ic= 3.3 TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 m= 12.2 Tp= 2717 LOW THERMOTROPICAL
 M= 28.9 Tn= 0 UPPER SUBHUMID
 M' = 34.4 Itc= 638
 m' = 7.8 Io= 5.4
 P= 1458 mm ———
 PE= 1106 mm ———

Imbibing	10 Sep.
Saturation	17 Nov.
Reserve Use	10 Apr.
Deficit	13 Jun.



CARVALHO (ANGOLA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A1b]
 + Type: A. Hyperoceanic
 + Subtype: 1. Ultrahyperoceanic
 + 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 [A4.2b.6a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant ..:
 + Thermic type.....: 2. THERMOTROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification: Trde.Ttr.Shu

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 902
 Coldest semester of the year.....(Psw): 556
 Warmest four months period of the year.....(Pcm1): 481
 Following warmest four months period.....(Pcm2): 841
 Positive precipitation dryest 3 months.....(Ppd): 12
 Positive precipitation dryest 2 months.....(Ppd2): 0
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 241
 Positive precipitation warmest 2 months.....(Pps2): 221
 Positive precipitation warmest 1 month.....(Pps1): 94
 Positive precipitation coldest 3 months.....(Ppw): 12
 Positive precipitation coldest 2 months.....(Ppw2): 0
 Positive precipitation coldest 1 month.....(Ppw1): 0

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	20	461	596	381

Tropical rainfall rhythms: 1 > 4 > 2 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 23.9
 Average coldest month [T].....(Tmin): 20.6
 Maximum temp. warmest month [M].....(Tmmax): 31.1
 Minimum temp. coldest month [m].....(Tmmin): 12.2
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.4
 Absolute Min.temp. coldest month [m'].....(Tamin): 7.8
 First warmest contrasted month [M].....(Tcmax): 29.4 (7)
 First coldest contrasted month [m].....(Tcmin): 12.2 (7)
 Dry station temperature.....(Td): 633
 Positive temperature dryest 3 months.....(Tpd): 633
 Positive temperature dryest 2 months.....(Tpd2): 414
 Positive temperature dryest 1 month.....(Tpd1): 206
 Positive temperature warmest 3 months.....(Tps): 706
 Positive temperature warmest 2 months.....(Tps2): 475
 Positive temperature warmest 1 month.....(Tps1): 239
 Positive temperature coldest 3 months.....(Tpw): 633
 Positive temperature coldest 2 months.....(Tpw2): 414
 Positive temperature coldest 1 month.....(Tpw1): 206

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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): 0.76
 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)	1831	2380	1750	2451	1240	119	0	0	201	940	1270	2400
Tp	231	228	231	231	231	219	206	208	231	239	236	228
Io (Iom)	7.94	10.4	7.59	10.6	5.38	0.54	0.00	0.00	0.87	3.93	5.38	10.5
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	5961 / 689			3810 / 681			201 / 644			4610 / 703		
Io (Iot)	8.652			5.598			0.312			6.559		
Semesters	December-May						June-November					
Pp(x10)/Tp	9771 / 1370						4811 / 1347					
Io (Iosm)	7.134						3.571					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 14582/2717=5.37 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1831	2380	1750	2451	1240	119	0	0	201	940	1270	2400
Tp [T*10]	231	228	231	231	231	219	206	208	231	239	236	228
Iom [Pp/Tp]	794	\$\$\$	759	\$\$\$	538	54	0	0	87	393	538	\$\$\$
Avm [200-Iom]	***	***	***	***	***	146	200	200	113	***	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	5961 / 689			3810 / 681			201 / 644			4610 / 703		
Iot [Pp/Tp]	865			560			31			656		
Avs E[Avm<200]	***			***			513			***		
Lower ultrahyperarid [2]						Lower hyperarid [1]						
Weak lower arid [1]						Weak upper arid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	3.33
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		13.26
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		2.81
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.79
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		64.41
+ Temperate warm (100>R>60)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		44.67
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		178.15
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P]		1.55
+ Humid (2>DR>0)		
Aridity Index of UNEP [I=P/PE]		1.32
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		41.20
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 2. Macrothermic

Thornthwaite (1948)													
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
P-E ratio	1.02	0.72	1.05	0.49	0.04	0.00	0.00	0.06	0.35	0.50	1.03	0.76	
T-E ratio	10.25	10.38	10.38	10.38	9.87	9.25	9.37	10.38	10.75	10.62	10.25	10.38	
Precipitation-effectiveness:	60.11					Temperature-efficiency							122.26
Moisture Index [MI=100*(P-PE)/PE]												31.85	
+ B1.Humid low-humid (20<MI<40)													
Index of dryness [DI=100*d/PE]												17.57	
+ Moderate deficit (16.7<DI<33.3)													
Index of humidity [HI=100*s/PE]												49.42	
+ Strong surplus (20<HI)													
Potential Evapotranspiration PE												1105.92	
+ Forth mesothermic (997<PE<1440)													

