

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

HUARIRENDA (BOLIVIA)

Altitude: 500 m.

Latitude: 19°14'S Longitude: 62°30'W

Temperature observation period.: 1972-1979 (8)

Rainfall observation period....: 1971-1979 (9)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	26.70	33.40	19.60	37.80	17.80	69.0	156.30
Feb.	27.60	33.30	22.40	36.70	13.30	72.0	142.86
Mar.	25.90	32.30	21.00	37.80	14.50	50.0	132.35
Apr.	22.90	29.80	16.00	35.50	6.60	52.0	82.91
May.	22.10	27.70	18.20	35.70	5.20	30.0	73.35
Jun.	21.00	27.50	16.80	32.80	2.20	9.0	59.84
Jul.	20.70	27.30	16.10	33.70	4.80	4.0	59.04
Aug.	22.20	30.30	16.60	37.40	3.70	11.0	77.50
Sep.	24.10	32.40	18.80	38.20	5.20	12.0	100.42
Oct.	27.30	34.20	24.00	40.70	11.50	43.0	154.68
Nov.	27.00	34.20	23.80	40.20	14.60	60.0	152.06
Dec.	27.90	33.60	23.70	38.50	16.50	101.0	167.25
Year	24.62	31.33	19.75	37.08	9.66	513	1358.6

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	680
Compensated thermicity index.....(Itc):	680
Simple continentality index.....(Ic):	7.2
Diurnality index.....(Id):	13.8
Annual ombrothermic index.....(Io):	1.74
Monthly dry ombrothermic index.....(Iod1):	0.19
Bimonthly dry ombrothermic index.....(Iod2):	0.31
Three monthly dry ombrothermic index.....(Iod3):	0.38
Four monthly dry ombrothermic index.....(Iod4):	0.63
Annual ombro-evaporation index.....(Ioe):	3.35
Annual positive temperature.....(Tp):	2954
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	639
Positive precipitation.....(Pp):	513

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	5	3	4	0

Latitudinal Belt...: Eutropical

Continentality.....: Hyperoceanic - Low Euhyperoceanic

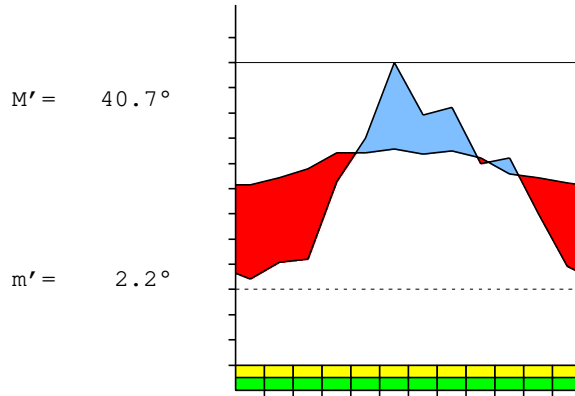
Bioclimate(Variant): TROPICAL XERIC (SEMIARID)

Bioclimatic Belt...: UPPER INFRATROPICAL UPPER SEMIARID

HUARIRENDA (BOLIVIA)

500 m

P= 513 19° 14' S 62° 30' W 8/9 y.
 T= 24.6° Ic= 7.2 Tp= 2954 Tn= 0
 m= 16.1° M= 27.3° Itc= 680 Io= 1.7



TROPICAL XERIC (SEMIARID)
 UPPER INFRATROPICAL UPPER SEMIARID

WATER INDEX CARD HUARIRENDA (BOLIVIA)
 Altitude: 500 m. Latitude: 19° 14' S

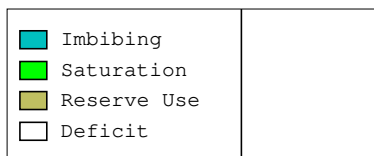
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	20.7	59	4	0	0	4	55	0	0	-0.9
Aug.	22.2	78	11	0	0	11	67	0	0	-0.8
Sep.	24.1	100	12	0	0	12	88	0	0	-0.8
Oct.	27.3	155	43	0	0	43	112	0	0	-0.7
Nov.	27.0	152	60	0	0	60	92	0	0	-0.6
Dec.	27.9	167	101	0	0	101	66	0	0	-0.3
Jan.	26.7	156	69	0	0	69	87	0	0	-0.5
Feb.	27.6	143	72	0	0	72	71	0	0	-0.4
Mar.	25.9	132	50	0	0	50	82	0	0	-0.6
Apr.	22.9	83	52	0	0	52	31	0	0	-0.3
May.	22.1	73	30	0	0	30	43	0	0	-0.5
Jun.	21.0	60	9	0	0	9	51	0	0	-0.8
Year	24.6	1359	513	*	*	513	846	0	0	*

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

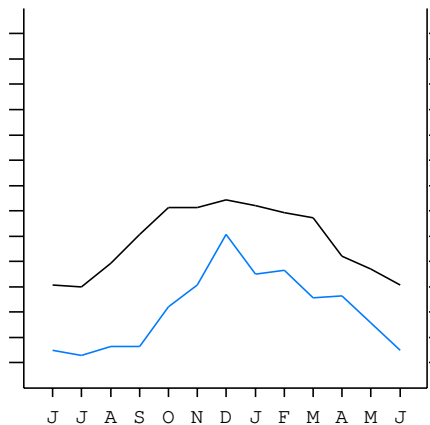
HUARIRENDA (BOLIVIA)

19°14' S 62°30' W 500 m 8/9 y.

T= 24.6 Ic= 7.2 TROPICAL XERIC (SEMIARID)
 m= 16.1 Tp= 2954 UPPER INFRATROPICAL
 M= 27.3 Tn= 0 UPPER SEMIARID
 M' = 40.7 Itc= 680
 m' = 2.2 Io= 1.7
 P= 513 mm ———
 PE= 1359 mm ———



All over the year,
 there is hydric deficit



HUARIRENDA (BOLIVIA)

Latitude: 19°14'S Longitude: 62°30'W Altitude: 500 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

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

Thermic types [A2.A1]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 2. Eutropical
 + Thermic type: A. Warm
 + Thermic subtype: 1. Torrid

Bioclimatic types [A3.1a.4a]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 3. XERIC
 + Bioclimatic variant ..:
 + Thermic type.....: 1. INFRATROPICAL
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 4. SEMIARID
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification: Trxe.Itr.Sar

HUARIRENDA (BOLIVIA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 395
 Coldest semester of the year.....(Psw): 118
 Warmest four months period of the year.....(Pcm1): 302
 Following warmest four months period.....(Pcm2): 141
 Positive precipitation dryest 3 months.....(Ppd): 24
 Positive precipitation dryest 2 months.....(Ppd2): 13
 Positive precipitation dryest 1 month.....(Ppd1): 4
 Positive precipitation warmest 3 months.....(Pps): 242
 Positive precipitation warmest 2 months.....(Pps2): 161
 Positive precipitation warmest 1 month.....(Pps1): 101
 Positive precipitation coldest 3 months.....(Ppw): 43
 Positive precipitation coldest 2 months.....(Ppw2): 13
 Positive precipitation coldest 1 month.....(Ppw1): 4

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	24	115	242	132

Tropical rainfall rhythms: 1 > 2 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.9
 Average coldest month [T].....(Tmin): 20.7
 Maximum temp. warmest month [M].....(Tmmax): 34.2
 Minimum temp. coldest month [m].....(Tmmin): 16.0
 Absolute Max.temp. warmest month [M'].....(Tamax): 40.7
 Absolute Min.temp. coldest month [m'].....(Tamin): 2.2
 First warmest contrasted month [M].....(Tcmax): 33.4 (1)
 First coldest contrasted month [m].....(Tcmin): 19.6 (1)
 Dry station temperature.....(Td): 639
 Positive temperature dryest 3 months.....(Tpd): 639
 Positive temperature dryest 2 months.....(Tpd2): 417
 Positive temperature dryest 1 month.....(Tpd1): 207
 Positive temperature warmest 3 months.....(Tps): 822
 Positive temperature warmest 2 months.....(Tps2): 549
 Positive temperature warmest 1 month.....(Tps1): 279
 Positive temperature coldest 3 months.....(Tpw): 638
 Positive temperature coldest 2 months.....(Tpw2): 417
 Positive temperature coldest 1 month.....(Tpw1): 207

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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

HUARIRENDA (BOLIVIA)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 2.65
 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)	1010	690	720	500	520	300	90	40	110	120	430	600
Tp	279	267	276	259	229	221	210	207	222	241	273	270
Io (Iom)	3.62	2.58	2.61	1.93	2.27	1.36	0.43	0.19	0.50	0.50	1.58	2.22
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	2420 / 822			1320 / 709			240 / 639			1150 / 784		
Io (Iot)	2.944			1.862			0.376			1.467		
Semesters	December-May						June-November					
Pp(x10)/Tp	3740 / 1531						1390 / 1423					
Io (Iosm)	2.443						0.977					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5130/2954=1.74 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1010	690	720	500	520	300	90	40	110	120	430	600
Tp [T*10]	279	267	276	259	229	221	210	207	222	241	273	270
Iom [Pp/Tp]	362	258	261	193	227	136	43	19	50	50	158	222
Avm [200-Iom]	***	***	***	7	***	64	157	181	150	150	42	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	2420 / 822			1320 / 709			240 / 639			1150 / 784		
Iot [Pp/Tp]	294			186			38			147		
Avs E[Avm<200]	***			***			488			***		
Upper ultrahyperarid [1]						Upper hyperarid [1]						
Strong lower arid [3]						Weak lower semiarid [1]						
Strong upper semiarid [1]						Weak upper semiarid [1]						

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	7.20
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		16.76
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		11.06
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.97
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		20.84
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		14.82
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		56.15
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		4.80
+ Arid (6>DR>3)		
Aridity Index of UNEP [I=P/PE]		0.38
+ Semiarid (0.5>Im>0.2)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		19.88
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)

- + Climate
- + Region
- + Thermic type: 1. Megathermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.24	0.24	0.17	0.19	0.10	0.03	0.01	0.03	0.04	0.14	0.20	0.35
T-E ratio	12.02	12.42	11.65	10.30	9.95	9.45	9.32	9.99	10.85	12.28	12.15	12.55
Precipitation-effectiveness: 17.31						Temperature-efficiency						132.93
Moisture Index [MI=100*(P-PE)/PE]												-62.24
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												62.24
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												1358.55
+ Forth mesothermic (997<PE<1440)												

