

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

CULPINA (BOLIVIA)

Altitude: 2400 m.

Latitude: 19°8'S Longitude: 65°16'W

Temperature observation period.: 1967-1985 (19)

Rainfall observation period....: 1967-1985 (19)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	16.30	23.80	8.90	28.00	0.00	76.0	82.32
Feb.	14.20	24.10	4.30	28.00	1.00	73.0	59.82
Mar.	14.70	25.30	4.10	29.50	0.00	56.0	66.35
Apr.	14.10	25.90	2.40	28.80	-4.00	17.0	58.08
May.	14.60	24.30	4.90	28.00	-8.00	1.0	60.13
Jun.	8.70	22.30	-4.90	24.00	-12.00	3.0	29.53
Jul.	8.50	24.50	-7.50	27.00	-15.00	0.0	29.59
Aug.	9.40	24.70	-5.80	29.00	-12.00	2.0	35.47
Sep.	10.50	24.70	-3.70	27.50	-13.80	5.0	40.92
Oct.	13.50	26.20	0.90	31.00	-5.00	16.0	61.70
Nov.	13.80	25.90	1.70	31.00	-5.00	33.0	63.48
Dec.	15.50	25.80	5.20	30.00	4.00	74.0	77.14
Year	12.82	24.79	0.87	28.48	-5.82	356	664.54

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	298
Compensated thermicity index.....(Itc):	298
Simple continentality index.....(Ic):	7.8
Diurnality index.....(Id):	32.0
Annual ombrothermic index.....(Io):	2.31
Monthly dry ombrothermic index.....(Iod1):	No
Bimonthly dry ombrothermic index.....(Iod2):	0.17
Three monthly dry ombrothermic index.....(Iod3):	0.13
Four monthly dry ombrothermic index.....(Iod4):	0.46
Annual ombro-evaporation index.....(Ioe):	5.03
Annual positive temperature.....(Tp):	1538
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	318
Positive precipitation.....(Pp):	356

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

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - Low Euhyperoceanic

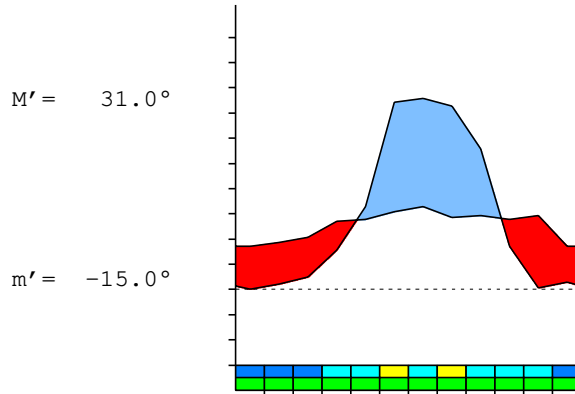
Bioclimate(Variant): TROPICAL XERIC (DRY)

Bioclimatic Belt...: LOW SUPRATROPICAL LOW DRY

CULPINA (BOLIVIA)

2400 m

P= 356 19° 8'S 65° 16'W 19/19 y.
 T= 12.8° Ic= 7.8 Tp= 1538 Tn= 0
 m= -7.5° M= 24.5° Itc= 298 Io= 2.3



TROPICAL XERIC (DRY)
 LOW SUPRATROPICAL LOW DRY

WATER INDEX CARD CULPINA (BOLIVIA)
 Altitude: 2400 m. Latitude: 19° 8'S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	8.5	30	0	0	0	0	30	0	0	-1.0
Aug.	9.4	35	2	0	0	2	33	0	0	-0.9
Sep.	10.5	41	5	0	0	5	36	0	0	-0.8
Oct.	13.5	62	16	0	0	16	46	0	0	-0.7
Nov.	13.8	63	33	0	0	33	30	0	0	-0.4
Dec.	15.5	77	74	0	0	74	3	0	0	0.0
Jan.	16.3	82	76	0	0	76	6	0	0	0.0
Feb.	14.2	60	73	13	13	60	0	0	0	0.2
Mar.	14.7	66	56	-10	3	66	0	0	0	-0.1
Apr.	14.1	58	17	-3	0	20	38	0	0	-0.7
May.	14.6	60	1	0	0	1	59	0	0	-0.9
Jun.	8.7	30	3	0	0	3	27	0	0	-0.8
Year	12.8	665	356	*	*	356	309	0	0	*

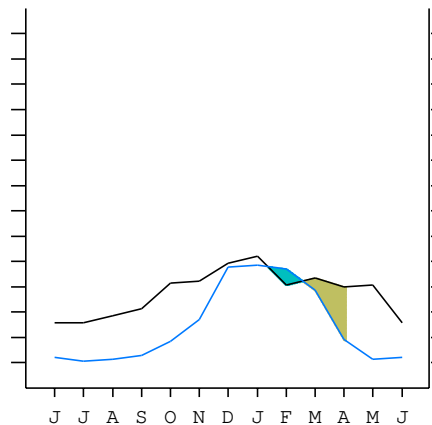
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CULPINA (BOLIVIA)

19°8'S 65°16'W 2400 m 19/19 y.

T= 12.8 Ic= 7.8 TROPICAL XERIC (DRY)
 m= -7.5 Tp= 1538 LOW SUPRATROPICAL
 M= 24.5 Tn= 0 LOW DRY
 M' = 31.0 Itc= 298
 m' = -15.0 Io= 2.3
 P= 356 mm ———
 PE= 665 mm ———

Imbibing	10 Jan.
Saturation	17 Feb.
Reserve Use	3 Apr.
Deficit	



CULPINA (BOLIVIA)

Latitude: 19°8'S Longitude: 65°16'W Altitude: 2400 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

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

Thermic types [A2.B4]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 2. Eutropical
 + Thermic type: B. Temperate
 + Thermic subtype: 4. Temperate

Bioclimatic types [A3.4b.5b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 3. XERIC
 + Bioclimatic variant ..:
 + Thermic type.....: 4. SUPRATROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 5. DRY
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Trxe.Str.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 297
 Coldest semester of the year.....(Psw): 59
 Warmest four months period of the year.....(Pcm1): 279
 Following warmest four months period.....(Pcm2): 21
 Positive precipitation dryest 3 months.....(Ppd): 4
 Positive precipitation dryest 2 months.....(Ppd2): 2
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 223
 Positive precipitation warmest 2 months.....(Pps2): 150
 Positive precipitation warmest 1 month.....(Pps1): 76
 Positive precipitation coldest 3 months.....(Ppw): 5
 Positive precipitation coldest 2 months.....(Ppw2): 3
 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	5	54	223	74

Tropical rainfall rhythms: 1 > 2 > 4 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 16.3
 Average coldest month [T].....(Tmin): 8.5
 Maximum temp. warmest month [M].....(Tmmax): 26.2
 Minimum temp. coldest month [m].....(Tmmin): -7.5
 Absolute Max.temp. warmest month [M'].....(Tamax): 31.0
 Absolute Min.temp. coldest month [m'].....(Tamin): -15.0
 First warmest contrasted month [M].....(Tcmax): 24.5 (7)
 First coldest contrasted month [m].....(Tcmin): -7.5 (7)
 Dry station temperature.....(Td): 318
 Positive temperature dryest 3 months.....(Tpd): 318
 Positive temperature dryest 2 months.....(Tpd2): 179
 Positive temperature dryest 1 month.....(Tpd1): 85
 Positive temperature warmest 3 months.....(Tps): 460
 Positive temperature warmest 2 months.....(Tps2): 318
 Positive temperature warmest 1 month.....(Tps1): 163
 Positive temperature coldest 3 months.....(Tpw): 266
 Positive temperature coldest 2 months.....(Tpw2): 172
 Positive temperature coldest 1 month.....(Tpw1): 85

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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)						o	o	o	o			
Pregelid.....[m' <=0] (Pf)	o		o	o	o	o	o	o	o	o	o	
Agelid.....[m' > 0] (Pf)		o										o
HiperAgelid..[all>0] (Pf)		o										o

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.87
 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)	740	760	730	560	170	10	30	0	20	50	160	330
Tp	155	163	142	147	141	146	87	85	94	105	135	138
Io (Iom)	4.77	4.66	5.14	3.81	1.21	0.07	0.34	0.00	0.21	0.48	1.19	2.39
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	2230 / 460			740 / 434			50 / 266			540 / 378		
Io (Iot)	4.848			1.705			0.188			1.429		
Semesters	December-May						June-November					
Pp(x10)/Tp	2970 / 894						590 / 644					
Io (Iosm)	3.322						0.916					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 3560/1538=2.31 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	740	760	730	560	170	10	30	0	20	50	160	330
Tp [T*10]	155	163	142	147	141	146	87	85	94	105	135	138
Iom [Pp/Tp]	477	466	514	381	121	7	34	0	21	48	119	239
Avm [200-Iom]	***	***	***	***	79	193	166	200	179	152	81	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	2230 / 460			740 / 434			50 / 266			540 / 378		
Iot [Pp/Tp]	485			171			19			143		
Avs E[Avm<200]	***			***			544			***		
Lower ultrahyperarid [2]						Upper ultrahyperarid [1]						
Lower hyperarid [1]						Upper hyperarid [1]						
Strong lower arid [1]						Strong lower semiarid [1]						
Weak lower semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	7.80
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		20.06
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		13.24
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.06
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		27.78
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		15.60
+ Semiarid -mediterranean- (20>Ia>15)		
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]		56.49
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		3.60
+ Arid (6>DR>3)		
Aridity Index of UNEP [I=P/PE]		0.54
+ Subhumid - dry (0.65>I>0.5)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		16.22
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.34	0.34	0.25	0.07	0.00	0.01	0.00	0.01	0.02	0.07	0.14	0.34
T-E ratio	7.33	6.39	6.61	6.35	6.57	3.91	3.82	4.23	4.72	6.07	6.21	6.97
Precipitation-effectiveness: 15.93						Temperature-efficiency						69.21
Moisture Index [MI=100*(P-PE)/PE]												-46.43
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												46.42
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												664.54
+ First mesothermic (570<PE<712)												

