

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

RAVELO (BOLIVIA)

Altitude: 3200 m.

Latitude: 18°48'S Longitude: 65°30'W

Temperature observation period.: 1969-1985 (17)

Rainfall observation period....: 1969-1985 (17)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	13.60	19.60	7.50	29.00	1.00	215.0	67.28
Feb.	13.90	20.00	7.90	28.10	0.30	194.0	60.03
Mar.	13.80	20.30	7.30	27.80	-2.00	159.0	63.10
Apr.	12.50	20.20	4.90	28.00	-9.00	36.0	51.55
May.	11.20	20.60	1.70	31.00	-13.00	4.0	44.50
Jun.	9.80	19.90	-0.20	30.00	-15.00	3.0	36.12
Jul.	9.40	19.40	-0.60	29.00	-14.00	5.0	35.41
Aug.	11.30	20.50	2.10	29.00	-11.20	14.0	46.87
Sep.	11.90	20.60	3.30	30.50	-7.00	22.0	49.99
Oct.	13.50	21.40	5.70	32.00	-3.00	64.0	63.74
Nov.	13.80	21.10	6.60	35.30	-4.00	138.0	65.51
Dec.	13.80	20.60	7.00	34.10	-3.00	232.0	68.51
Year	12.38	20.35	4.43	30.32	-6.66	1086	652.61

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	312
Compensated thermicity index.....(Itc):	312
Simple continentality index.....(Ic):	4.5
Diurnality index.....(Id):	20.1
Annual ombrothermic index.....(Io):	7.31
Monthly dry ombrothermic index.....(Iod1):	0.31
Bimonthly dry ombrothermic index.....(Iod2):	0.33
Three monthly dry ombrothermic index.....(Iod3):	0.39
Four monthly dry ombrothermic index.....(Iod4):	1.12
Annual ombro-evaporation index.....(Ioe):	11.93
Annual positive temperature.....(Tp):	1485
Annual negative temperature.....(Tn):	0
Dry station temperature.....(Td):	304
Positive precipitation.....(Pp):	1086

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	6	1	2	3	0

Latitudinal Belt...: Eutropical

Continentalty.....: Hyperoceanic - High Euhyperoceanic

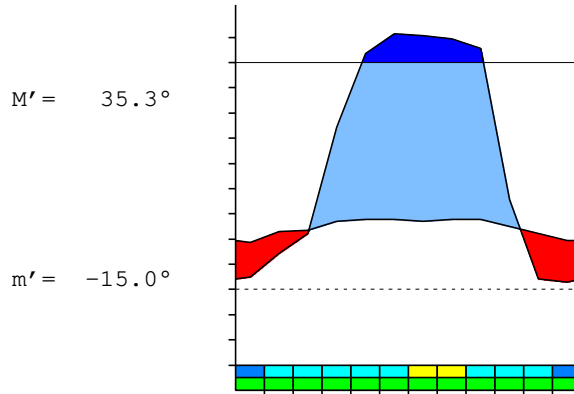
Bioclimate(Variant): TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)

Bioclimatic Belt...: LOW SUPRATROPICAL LOW HUMID

RAVELO (BOLIVIA)

3200 m

P= 1086 18° 48' S 65° 30' W 17/17 y.
 T= 12.4° Ic= 4.5 Tp= 1485 Tn= 0
 m= -0.6° M= 19.4° Itc= 312 Io= 7.3



TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 LOW SUPRATROPICAL LOW HUMID

WATER INDEX CARD RAVELO (BOLIVIA)
 Altitude: 3200 m. Latitude: 18° 48' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	9.4	35	5	-11	0	16	20	0	7	-0.8
Aug.	11.3	47	14	0	0	14	33	0	3	-0.7
Sep.	11.9	50	22	0	0	22	28	0	2	-0.5
Oct.	13.5	64	64	0	0	64	0	0	1	0.0
Nov.	13.8	66	138	72	73	66	0	0	0	1.1
Dec.	13.8	69	232	27	100	69	0	136	68	2.3
Jan.	13.6	67	215	0	100	67	0	148	108	2.1
Feb.	13.9	60	194	0	100	60	0	134	121	2.2
Mar.	13.8	63	159	0	100	63	0	96	108	1.5
Apr.	12.5	52	36	-16	84	52	0	0	54	-0.3
May.	11.2	45	4	-41	44	45	0	0	27	-0.9
Jun.	9.8	36	3	-33	11	36	0	0	14	-0.9
Year	12.4	653	1086	*	*	572	80	514	514	*

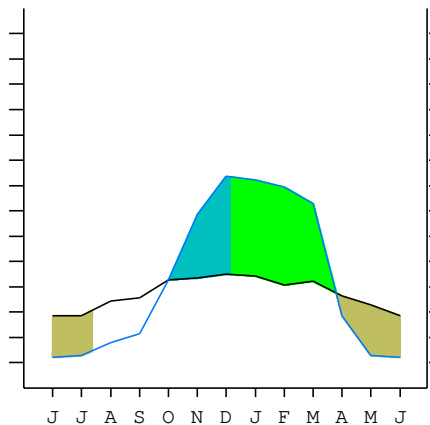
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

RAVELO (BOLIVIA)

18°48' S 65°30' W 3200 m 17/17 y.

T= 12.4 Ic= 4.5 TROPICAL PLUVISEASONAL (SUBXEROPHYTIC)
 m= -0.6 Tp= 1485 LOW SUPRATROPICAL
 M= 19.4 Tn= 0 LOW HUMID
 M' = 35.3 Itc= 312
 m' = -15.0 Io= 7.3
 P= 1086 mm ———
 PE= 653 mm ———

Imbibing	30 Sep.
Saturation	5 Dec.
Reserve Use	26 Mar.
Deficit	11 Jul.



RAVELO (BOLIVIA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A2a]
 + Type: A. Hyperoceanic
 + Subtype: 2. Euhyperoceanic
 + Variant: a. High

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

Bioclimatic types [A4.4b.7b]
 + Macrobioclimate: A. TROPICAL
 + Bioclimate: 4. PLUVISEASONAL
 + Bioclimatic variant ..:
 + Thermic type.....: 4. SUPRATROPICAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Trde.Str.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 1002
 Coldest semester of the year.....(Psw): 84
 Warmest four months period of the year.....(Pcm1): 779
 Following warmest four months period.....(Pcm2): 202
 Positive precipitation dryest 3 months.....(Ppd): 12
 Positive precipitation dryest 2 months.....(Ppd2): 7
 Positive precipitation dryest 1 month.....(Ppd1): 3
 Positive precipitation warmest 3 months.....(Pps): 568
 Positive precipitation warmest 2 months.....(Pps2): 353
 Positive precipitation warmest 1 month.....(Pps1): 194
 Positive precipitation coldest 3 months.....(Ppw): 12
 Positive precipitation coldest 2 months.....(Ppw2): 8
 Positive precipitation coldest 1 month.....(Ppw1): 5

Seasons	Jun+Jul+Aug Ttr3-3	Sep+Oct+Nov Ttr4-4	Dec+Jan+Feb Ttr1-1	Mar+Apr+May Ttr2-2
Rainfall	22	224	641	199

Tropical rainfall rhythms: 1 > 4 > 2 > 3

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 13.9
 Average coldest month [T].....(Tmin): 9.4
 Maximum temp. warmest month [M].....(Tmmax): 21.4
 Minimum temp. coldest month [m].....(Tmmin): -0.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 35.3
 Absolute Min.temp. coldest month [m'].....(Tamin): -15.0
 First warmest contrasted month [M].....(Tcmax): 19.9 (6)
 First coldest contrasted month [m].....(Tcmin): -0.2 (6)
 Dry station temperature.....(Td): 304
 Positive temperature dryest 3 months.....(Tpd): 304
 Positive temperature dryest 2 months.....(Tpd2): 210
 Positive temperature dryest 1 month.....(Tpd1): 98
 Positive temperature warmest 3 months.....(Tps): 413
 Positive temperature warmest 2 months.....(Tps2): 277
 Positive temperature warmest 1 month.....(Tps1): 139
 Positive temperature coldest 3 months.....(Tpw): 304
 Positive temperature coldest 2 months.....(Tpw2): 192
 Positive temperature coldest 1 month.....(Tpw1): 94

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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					
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): 0.60
 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)	2320	2150	1940	1590	360	40	30	50	140	220	640	1380
Tp	138	136	139	138	125	112	98	94	113	119	135	138
Io (Iom)	16.8	15.8	14.0	11.5	2.88	0.36	0.31	0.53	1.24	1.85	4.74	10.00
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp(x10)/Tp	6410 / 413			1990 / 375			220 / 305			2240 / 392		
Io (Iot)	15.52			5.307			0.721			5.714		
Semesters	December-May						June-November					
Pp(x10)/Tp	8400 / 788						2460 / 697					
Io (Iosm)	10.66						3.529					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 10860/1485=7.31 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	2320	2150	1940	1590	360	40	30	50	140	220	640	1380
Tp [T*10]	138	136	139	138	125	112	98	94	113	119	135	138
Iom [Pp/Tp]	\$\$	\$\$	\$\$	\$\$	288	36	31	53	124	185	474	\$\$
Avm [200-Iom]	***	***	***	***	***	164	169	147	76	15	***	***
Seasons	Dec+Jan+Feb			Mar+Apr+May			Jun+Jul+Aug			Sep+Oct+Nov		
Pp / Tp	6410 / 413			1990 / 375			220 / 305			2240 / 392		
Iot [Pp/Tp]	1552			531			72			571		
Avs E[Avm<200]	***			***			392			***		
Upper hyperarid [2]							Weak lower arid [2]					
Weak lower semiarid [1]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	4.50
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		3.34
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		1.88
+ Hyperoceanic (-20<CI<20)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		0.62
+ Oceanic (0.6<CI<1.1)		
Rainfall Index of Lang (1925) [R=P/T]		87.76
+ Temperate warm (100>R>60)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		48.54
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		237.33
+ Humid (Q>90)		
I of Dantin & Revenga (1940) [DR=100*T/P]		1.14
+ Humid (2>DR>0)		
Aridity Index of UNEP [I=P/PE]		1.66
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		49.56
+ 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	1.16	1.03	0.83	0.17	0.01	0.01	0.02	0.06	0.10	0.30	0.71	1.26
T-E ratio	6.12	6.25	6.21	5.63	5.04	4.41	4.23	5.09	5.35	6.07	6.21	6.21
Precipitation-effectiveness: 56.63						Temperature-efficiency						66.82
Moisture Index [MI=100*(P-PE)/PE]												66.41
+ B3.Humid high-humid (60<MI<80)												
Index of dryness [DI=100*d/PE]												12.32
+ No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]												78.73
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE												652.61
+ First mesothermic (570<PE<712)												

