

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

S.Rivas-Martinez(+) & S.Rivas-Saenz

(Adapted to Synoptical Table 14/02/2020)

CHOYBALSAN (MONGOLIA)

Altitude: 756 m.

Latitude: 48°4'N Longitude: 114°30'E

Temperature observation period.: 1986-1994 (9)

Rainfall observation period....: 1986-1994 (9)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	-19.17	-13.89	-24.44	1.11	-41.11	2.5	0.00
Feb.	-15.84	-8.89	-22.78	7.22	-37.22	9.1	0.00
Mar.	-7.23	-0.56	-13.89	16.11	-36.11	1.5	0.00
Apr.	2.50	9.44	-4.44	28.89	-17.22	7.9	16.21
May.	10.00	17.22	2.78	33.89	-8.89	7.6	69.81
Jun.	16.95	23.89	10.00	37.22	1.11	23.6	117.19
Jul.	19.73	25.56	13.89	36.11	6.11	48.0	136.46
Aug.	18.06	23.89	12.22	33.89	2.78	43.4	115.13
Sep.	11.11	17.22	5.00	32.22	-6.11	22.6	61.86
Oct.	2.77	9.44	-3.89	25.00	-15.00	5.1	14.58
Nov.	-9.16	-3.33	-15.00	12.22	-27.78	1.8	0.00
Dec.	-16.67	-11.11	-22.22	1.11	-35.00	12.2	0.00
Year	1.09	7.41	-5.23	22.08	-17.87	185	531.25

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	-372
Compensated thermicity index.....(Itc):	20
Simple continentality index.....(Ic):	38.9
Diurnality index.....(Id):	14.4
Annual ombrothermic index.....(Io):	1.95
Monthly estival ombrothermic index.....(Ios1):	1.39
Bimonthly estival ombrothermic index.....(Ios2):	2.42
Threemonthly estival ombrothermic index.....(Ios3):	2.10
Fourmonthly estival ombrothermic index.....(Ios4):	1.89
Annual ombro-evaporation index.....(Ioe):	0.35
Annual positive temperature.....(Tp):	811
Annual negative temperature.....(Tn):	681
Estival temperature.....(Ts):	547
Positive precipitation.....(Pp):	158

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	0	4	2	1	5

Latitudinal Belt...: High Eutemperate

Continental.....: Continental - High Eucontinental

Bioclimate(Variant): TEMPERATE XERIC (STEPPIC,HEMIBOREAL)

Bioclimatic Belt...: UPPER SUPRATEMPERATE (HEMIBOREAL) UPPER SEMIARID

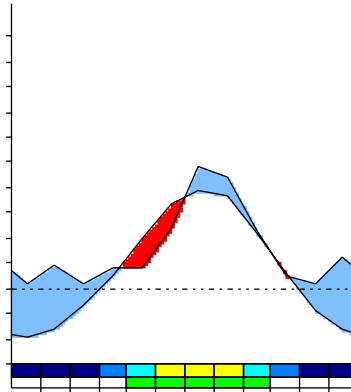
CHOYBALSAN (MONGOLIA)

756 m

P= 185 48° 4'N 114° 30'E 9/9 y.
 T= 1.1 ° Ic= 38.9 Tp= 811 Tn= 681
 m= -24.4 ° M= -13.9 ° Itc= 20 Io= 2.0

M' = 37.2°

m' = -41.1°



TEMPERATE XERIC (STEPIC)
 UPPER SUPRATEMPERATE (HEMIBOREAL) UPPER SEMIARID

WATER INDEX CARD CHOYBALSAN (MONGOLIA)

Altitude: 756 m. Latitude: 48° 4'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	-19.2	0	3	3	16	0	0	0	0	*
Feb.	-15.8	0	9	9	26	0	0	0	0	*
Mar.	-7.2	0	2	2	27	0	0	0	0	*
Apr.	2.5	16	8	-8	19	16	0	0	0	-0.5
May.	10.0	70	8	-19	0	26	43	0	0	-0.8
Jun.	17.0	117	24	0	0	24	94	0	0	-0.7
Jul.	19.7	136	48	0	0	48	88	0	0	-0.6
Aug.	18.1	115	43	0	0	43	72	0	0	-0.6
Sep.	11.1	62	23	0	0	23	39	0	0	-0.6
Oct.	2.8	15	5	0	0	5	9	0	0	-0.6
Nov.	-9.2	0	2	2	2	0	0	0	0	*
Dec.	-16.7	0	12	12	14	0	0	0	0	*
Year	1.1	531	185	*	*	185	346	0	0	*

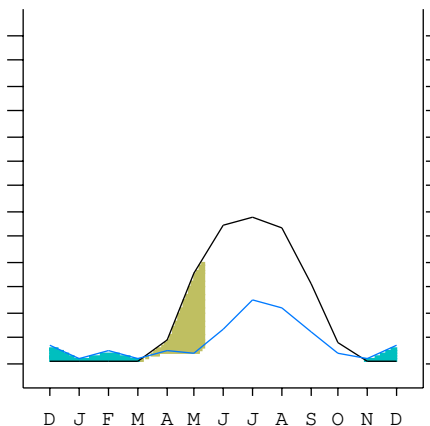
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

CHOYBALSAN (MONGOLIA)

48°4'N 114°30'E 756 m 9/9 y.

T= 1.1 Ic= 38.9 TEMPERATE XERIC (STEPIC)
 m= -24.4 Tp= 811 UPPER SUPRATEMPERATE (HEMIBOREAL)
 M= -13.9 Tn= 681 UPPER SEMIARID
 M' = 37.2 Itc= 20
 m' = -41.1 Io= 2.0
 P= 185 mm ———
 PE= 531 mm ———

Imbibing	26 Oct.
Saturation	
Reserve Use	5 Mar.
Deficit	10 May.



CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [C3b]
 + Type: C. Continental
 + Subtype: 3. Eucontinental
 + Variant: b. High
 Thermic types [B1.C7]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. High Eutemperate
 + Thermic type: C. Cold
 + Thermic subtype: 7. Cold
 Bioclimatic types [Cla.4a.4a]
 + Macrobioclimate: C. TEMPERATE
 + Bioclimate: 1. XERIC
 + Bioclimatic variant .: STEPPIC,HEMIBOREAL
 + Thermic type.....: 4. SUPRATEMPERATE (HEMIBOREAL)
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 4. SEMIARID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic Classification:Texe (Stp) .Ste.Sar.Euc

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 150
 Coldest semester of the year.....(Psw): 35
 Warmest four months period of the year.....(Pcm1): 138
 Following warmest four months period.....(Pcm2): 22
 Positive precipitation dryest 3 months.....(Ppd): 0
 Positive precipitation dryest 2 months.....(Ppd2): 5
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 115
 Positive precipitation warmest 2 months.....(Pps2): 91
 Positive precipitation warmest 1 month.....(Pps1): 48
 Positive precipitation coldest 3 months.....(Ppw): 0
 Positive precipitation coldest 2 months.....(Ppw2): 0
 Positive precipitation coldest 1 month.....(Ppw1): 0

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	23	17	115	29

Seasonal rainfall rhythms: S > F > W > P

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 19.7
 Average coldest month [T].....(Tmin): -19.2
 Maximum temp. warmest month [M].....(Tmmax): 25.6
 Minimum temp. coldest month [m].....(Tmmin): -24.4
 Absolute Max.temp. warmest month [M'].....(Tamax): 37.2
 Absolute Min.temp. coldest month [m'].....(Tamin): -41.1
 First warmest contrasted month [M].....(Tcmax): 17.2 (5)
 First coldest contrasted month [m].....(Tcmin): 2.8 (5)
 Estival temperature.....(Ts): 547
 Positive temperature dryest 3 months.....(Tpd): 0
 Positive temperature dryest 2 months.....(Tpd2): 28
 Positive temperature dryest 1 month.....(Tpd1): 0
 Positive temperature warmest 3 months.....(Tps): 547
 Positive temperature warmest 2 months.....(Tps2): 378
 Positive temperature warmest 1 month.....(Tps1): 197
 Positive temperature coldest 3 months.....(Tpw): 0
 Positive temperature coldest 2 months.....(Tpw2): 0
 Positive temperature coldest 1 month.....(Tpw1): 0

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 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			
Ultragelid...[M'<=0] (Pf)												
Hypergelid...[M <=0] (Pf)	o	o	o								o	o
Gelid.....[T <=0] (Pf)	o	o	o								o	o
Subgelid.....[m <=0] (Pf)	o	o	o	o						o	o	o
Pregelid.....[m'<=0] (Pf)	o	o	o	o	o				o	o	o	o
Agelid.....[m'> 0] (Pf)						o	o	o				
HiperAgelid..[all>0] (Pf)						o	o	o				

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 2.87
 Mediterranean index of July.[PE/P].....(Im1): 2.84
 Mediterranean index of July & August.....(Im2): 2.75
 Mediterranean index of June, July & August....(Im3): 3.21

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	*	*	*	*	79	76	236	480	434	226	51	*
Tp	*	*	*	*	25	100	170	197	181	111	28	*
Io (Iom)	*	*	*	*	3.16	0.76	1.39	2.43	2.40	2.03	1.84	*
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	*/*			*/*			1150 / 547			*/*		
Io (Iot)	*			*			2.101			*		
Semesters	December-May						June-November					
Pp(x10)/Tp	*/*						*/*					
Io (Iosm)	*						*					

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 1582/811=1.95 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	*	*	*	*	79	76	236	480	434	226	51	*
Tp [T*10]	*	*	*	*	25	100	170	197	181	111	28	*
Iom [Pp/Tp]	!!	!!	!!	!!	316	76	139	243	240	203	184	!!
Avm [200-Iom]	***	***	***	***	***	124	61	***	***	***	16	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	* / *			* / *			1150 / 547			* / *		
Iot [Pp/Tp]	**			**			210			**		
Avs E[Avm<200]	***			***			***			***		
Strong upper arid [1]							Weak lower semiarid [1]					
Weak upper semiarid [1]												

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 38.90
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 68.49
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 63.92
 + Continental (60<CI<80)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 2.29
 + Continental (1.7<CI<2.3)
 Rainfall Index of Lang (1925) [R=P/T]: 170.39
 + Humid (R>160)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 16.71
 + Semiarid -mediterranean- (20>Ia>15)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 330.89
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 0.59
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 0.35
 + Semiarid (0.5>Im>0.2)
 Potencial Erosion I of Fournier (1960) [K=Pi²/P].....: 12.43
 + Very low (K<60)

CHOYBALSAN (MONGOLIA)

Latitude: 48°4'N Longitude: 114°30'E Altitude: 756 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: B. Cold and temperate cold
 + Region: 10. Psicroxeroterico (Submediterranean)
 + Thermic type: 7. Hipermicrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.02	0.06	0.01	0.04	0.03	0.09	0.19	0.17	0.10	0.03	0.01	0.09
T-E ratio	0.00	0.00	0.00	1.13	4.50	7.63	8.88	8.13	5.00	1.25	0.00	0.00
Precipitation-effectiveness: 8.42						Temperature-efficiency: 36.50						
Moisture Index [MI=100*(P-PE)/PE]: -65.12 + D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]: 65.11 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]: 0.00 + No surplus (0<HI<10)												
Potential Evapotranspiration PE: 531.25 + Second microthermic (427<PE<570)												

