

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

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

(Adapted to Synoptical Table 14/02/2020)

HAY RIVER (CANADA)

Altitude: 165 m.

Latitude: 60°51'N Longitude: 115°46'W

Temperature observation period.: 1944-1994 (51)

Rainfall observation period....: 1965-1994 (30)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	-24.17	-18.89	-29.44	9.44	-52.22	17.0	0.00
Feb.	-22.50	-16.67	-28.33	13.33	-50.56	14.2	0.00
Mar.	-16.11	-10.00	-22.22	15.56	-47.22	12.7	0.00
Apr.	-5.28	0.56	-11.11	23.33	-40.00	16.8	0.00
May.	4.72	10.00	-0.56	33.33	-24.44	25.1	54.69
Jun.	10.56	16.11	5.00	35.00	-7.78	29.7	107.39
Jul.	15.56	21.11	10.00	35.56	-1.67	33.5	142.72
Aug.	13.61	18.89	8.33	33.89	-6.67	40.6	111.69
Sep.	8.06	12.78	3.33	31.67	-15.56	38.4	58.94
Oct.	0.56	4.44	-3.33	33.33	-26.11	29.2	6.16
Nov.	-12.50	-8.33	-16.67	15.00	-40.56	27.7	0.00
Dec.	-21.67	-16.67	-26.67	12.22	-51.11	20.3	0.00
Year	-4.10	1.11	-9.31	24.31	-30.32	305	481.58

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	-524
Compensated thermicity index.....(Itc):	-111
Simple continentality index.....(Ic):	39.7
Diurnality index.....(Id):	12.2
Annual ombrothermic index.....(Io):	3.70
Monthly estival ombrothermic index.....(Ios1):	2.15
Bimonthly estival ombrothermic index.....(Ios2):	2.54
Threemonthly estival ombrothermic index.....(Ios3):	2.61
Fourmonthly estival ombrothermic index.....(Ios4):	2.90
Annual ombro-evaporation index.....(Ioe):	0.63
Annual positive temperature.....(Tp):	531
Annual negative temperature.....(Tn):	1022
Estival temperature.....(Ts):	397
Positive precipitation.....(Pp):	197

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

Latitudinal Belt...: High Subtemperate

Continentality.....: Continental - High Eucontinental

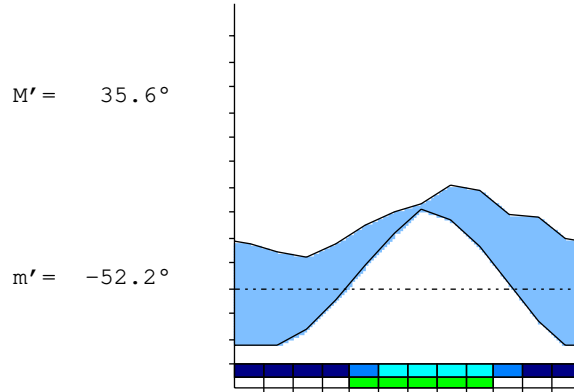
Bioclimate(Variant): BOREAL CONTINENTAL (STEPPIC)

Bioclimatic Belt...: LOW SUPRABOREAL LOW SUBHUMID

HAY RIVER (CANADA)

165 m

P= 305 60° 51'N 115° 46'W 51/30 y.
 T= -4.1 ° Ic= 39.7 Tp= 531 Tn= 1022
 m= -29.4 ° M= -18.9 ° Itc= -111 Io= 3.7



BOREAL CONTINENTAL (STEPPIC)
 LOW SUPRABOREAL LOW SUBHUMID

WATER INDEX CARD HAY RIVER (CANADA)
 Altitude: 165 m. Latitude: 60° 51'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	-24.2	0	17	17	88	0	0	0	0	*
Feb.	-22.5	0	14	12	100	0	0	2	1	*
Mar.	-16.1	0	13	0	100	0	0	13	7	*
Apr.	-5.3	0	17	0	100	0	0	17	12	*
May.	4.7	55	25	-30	70	55	0	0	6	-0.5
Jun.	10.6	107	30	-70	0	100	7	0	3	-0.7
Jul.	15.6	143	34	0	0	34	109	0	1	-0.7
Aug.	13.6	112	41	0	0	41	71	0	1	-0.6
Sep.	8.1	59	38	0	0	38	21	0	0	-0.3
Oct.	0.6	6	29	23	23	6	0	0	0	3.7
Nov.	-12.5	0	28	28	51	0	0	0	0	*
Dec.	-21.7	0	20	20	71	0	0	0	0	*
Year	-4.1	482	305	*	*	273	208	32	32	*

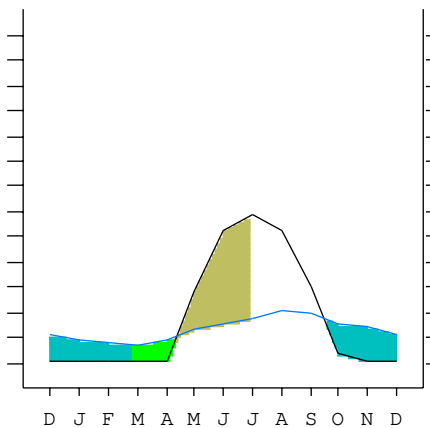
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

HAY RIVER (CANADA)

60°51'N 115°46'W 165 m 51/30 y.

T= -4.1 Ic= 39.7 BOREAL CONTINENTAL (STEPPIC)
 m= -29.4 Tp= 531 LOW SUPRABOREAL
 M= -18.9 Tn= 1022 LOW SUBHUMID
 M' = 35.6 Itc= -111
 m' = -52.2 Io= 3.7
 P= 305 mm ———
 PE= 482 mm ———

Imbibing	15 Sep.
Saturation	26 Feb.
Reserve Use	11 Apr.
Deficit	28 Jun.



HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [C3b]
 + Type: C. Continental
 + Subtype: 3. Eucontinental
 + Variant: b. High

Thermic types [B2.D8]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 2. High Subtemperate
 + Thermic type: D. Gelid
 + Thermic subtype: 8. Ultramicrothermic

Bioclimatic types [D3a.4b.6b]
 + Macrobioclimate: D. BOREAL
 + Bioclimate: 3. CONTINENTAL
 + Bioclimatic variant .: STEPPIC
 + Thermic type.....: 4. SUPRABOREAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW

Bioclimatic ClassificationBoco(Stp).Sbo.Shu.Euc

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 197
 Coldest semester of the year.....(Psw): 109
 Warmest four months period of the year.....(Pcml): 142
 Following warmest four months period.....(Pcm2): 94
 Positive precipitation dryest 3 months.....(Ppd): 0
 Positive precipitation dryest 2 months.....(Ppd2): 0
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 104
 Positive precipitation warmest 2 months.....(Pps2): 74
 Positive precipitation warmest 1 month.....(Pps1): 34
 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	51	54	103	95

Seasonal rainfall rhythms: S > F > P > W

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 15.6
 Average coldest month [T].....(Tmin): -24.2
 Maximum temp. warmest month [M].....(Tmmax): 21.1
 Minimum temp. coldest month [m].....(Tmmin): -29.4
 Absolute Max.temp. warmest month [M'].....(Tamax): 35.6
 Absolute Min.temp. coldest month [m'].....(Tamin): -52.2
 First warmest contrasted month [M].....(Tcmax): -10.0 (3)
 First coldest contrasted month [m].....(Tcmin): -22.2 (3)
 Estival temperature.....(Ts): 397
 Positive temperature dryest 3 months.....(Tpd): 0
 Positive temperature dryest 2 months.....(Tpd2): 0
 Positive temperature dryest 1 month.....(Tpd1): 0
 Positive temperature warmest 3 months.....(Tps): 397
 Positive temperature warmest 2 months.....(Tps2): 292
 Positive temperature warmest 1 month.....(Tps1): 156
 Positive temperature coldest 3 months.....(Tpw): 0
 Positive temperature coldest 2 months.....(Tpw2): 0
 Positive temperature coldest 1 month.....(Tpw1): 0

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 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	o
Subgelid.....[m <=0] (Pf)	o	o	o	o	o					o	o	o
Pregelid.....[m'<=0] (Pf)	o	o	o	o	o	o	o	o	o	o	o	o
Agelid.....[m'> 0] (Pf)												
HiperAgelid..[all>0] (Pf)												

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.58
 Mediterranean index of July.[PE/P].....(Im1): 4.26
 Mediterranean index of July & August.....(Im2): 3.43
 Mediterranean index of June, July & August....(Im3): 3.49

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	*	*	*	*	*	251	297	335	406	384	292	*
Tp	*	*	*	*	*	47	106	156	136	81	6	*
Io (Iom)	*	*	*	*	*	5.32	2.81	2.15	2.98	4.76	52.1	*
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	*/*			*/*			1038 / 397			*/*		
Io (Iot)	*			*			2.613			*		
Semesters	December-May						June-November					
Pp(x10)/Tp	*/*						*/*					
Io (Iosm)	*						*					

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 1965/531=3.70 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	*	*	*	*	*	251	297	335	406	384	292	*
Tp [T*10]	*	*	*	*	*	47	106	156	136	81	6	*
Iom [Pp/Tp]	!!	!!	!!	!!	!!	532	281	215	298	476	\$\$!!
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	* / *			* / *			1038 / 397			* / *		
Iot [Pp/Tp]	**			**			261			**		
Avs E[Avm<200]	***			***			***			***		

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 39.73
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: 56.94
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: 57.50
 + Subcontinental (40<CI<60)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 1.87
 + Continental (1.7<CI<2.3)
 Rainfall Index of Lang (1925) [R=P/T]: -74.50
 +
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 51.70
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmmax²-Tmmin²)]: -72.48
 +
 I of Dantin & Revenga (1940) [DR=100*T/P]: -1.34
 +
 Aridity Index of UNEP [I=P/PE]: 0.63
 + Subhumid - dry (0.65>I>0.5)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 5.40
 + Very low (K<60)

HAY RIVER (CANADA)

Latitude: 60°51'N Longitude: 115°46'W Altitude: 165 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: B. Cold and temperate cold
 + Region: 11. Psicroaxeric (Axeric cold)
 + Thermic type: 8. Ultramicrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.13	0.10	0.09	0.13	0.15	0.14	0.14	0.18	0.21	0.21	0.22	0.16
T-E ratio	0.00	0.00	0.00	0.00	2.12	4.75	7.00	6.12	3.63	0.25	0.00	0.00
Precipitation-effectiveness: 18.47						Temperature-efficiency: 23.88						
Moisture Index [MI=100*(P-PE)/PE]: -36.63 + D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]: 43.21 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]: 6.58 + No surplus (0<HI<10)												
Potential Evapotranspiration PE: 481.58 + Second microthermic (427<PE<570)												

