

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

USHUAIA (ARGENTINA)

Altitude: 21 m.

Latitude: 54°49'S Longitude: 68°19'W

Temperature observation period.: 1941-1950 (10)

Rainfall observation period....: 1941-1950 (10)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	9.20	14.00	5.30	26.50	0.00	64.0	88.23
Feb.	9.10	14.40	5.10	23.80	-1.60	46.0	70.49
Mar.	7.90	12.90	4.20	25.50	-2.00	59.0	60.63
Apr.	5.60	10.10	2.00	20.00	-6.00	51.0	36.66
May.	3.20	6.80	-0.40	19.00	-11.10	48.0	20.16
Jun.	2.10	5.70	-1.40	19.00	-11.60	49.0	12.67
Jul.	2.00	5.60	-1.30	17.50	-11.10	42.0	12.98
Aug.	1.80	5.00	-1.50	13.20	-19.60	55.0	14.85
Sep.	3.80	8.10	-0.50	15.30	-6.30	31.0	31.13
Oct.	6.30	11.00	1.90	17.40	-5.10	39.0	56.18
Nov.	7.00	11.90	3.00	21.90	-3.50	48.0	67.31
Dec.	8.80	13.70	5.00	24.50	-0.90	51.0	87.69
Year	5.57	9.93	1.78	20.30	-6.57	583	558.99

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	91
Compensated thermicity index.....(Itc):	85
Simple continentality index.....(Ic):	7.4
Diurnality index.....(Id):	9.3
Annual ombrothermic index.....(Io):	8.73
Monthly estival ombrothermic index.....(Ios1):	6.96
Bimonthly estival ombrothermic index.....(Ios2):	6.01
Threemonthly estival ombrothermic index.....(Ios3):	5.94
Fourmonthly estival ombrothermic index.....(Ios4):	6.13
Annual ombro-evaporation index.....(Ioe):	1.11
Annual positive temperature.....(Tp):	668
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	271
Positive precipitation.....(Pp):	583

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	12	0	0	0	0

Latitudinal Belt...: Low subtemperate

Continentalty.....: Hyperoceanic - Low Euhyperoceanic

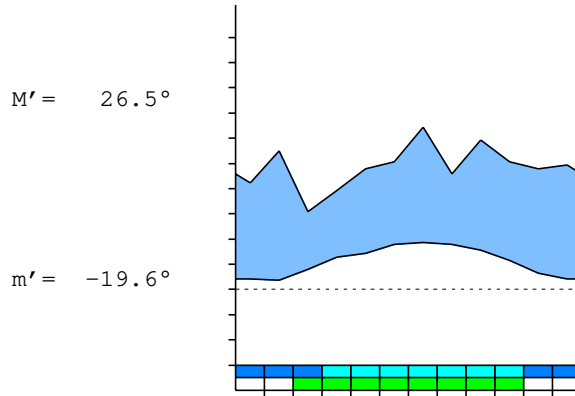
Bioclimate.....: BOREAL (ANTIBOREAL) HYPEROCEANIC

Macrobioclimate.....: LOW MESOBOREAL LOW HUMID

USHUAIA (ARGENTINA)

21 m

P= 583 54° 49' S 68° 19' W 10/10 y.
 T= 5.6° Ic= 7.4 Tp= 668 Tn= 0
 m= -1.5° M= 5.0° Itc= 85 Io= 8.7



BOREAL (ANTIBOREAL) HYPEROCEANIC
 LOW MESOBOREAL LOW HUMID

WATER INDEX CARD

USHUAIA (ARGENTINA)

Altitude: 21 m.

Latitude: 54° 49' S

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jul.	2.0	13	42	21	100	13	0	8	4	2.2
Aug.	1.8	15	55	0	100	15	0	40	22	2.7
Sep.	3.8	31	31	-0	100	31	0	0	11	0.0
Oct.	6.3	56	39	-17	83	56	0	0	5	-0.3
Nov.	7.0	67	48	-19	63	67	0	0	3	-0.2
Dec.	8.8	88	51	-37	27	88	0	0	1	-0.4
Jan.	9.2	88	64	-24	2	88	0	0	1	-0.2
Feb.	9.1	70	46	-2	0	48	22	0	0	-0.3
Mar.	7.9	61	59	0	0	59	2	0	0	0.0
Apr.	5.6	37	51	14	14	37	0	0	0	0.3
May.	3.2	20	48	28	42	20	0	0	0	1.3
Jun.	2.1	13	49	36	79	13	0	0	0	2.8
Year	5.6	559	583	*	*	535	24	48	48	*

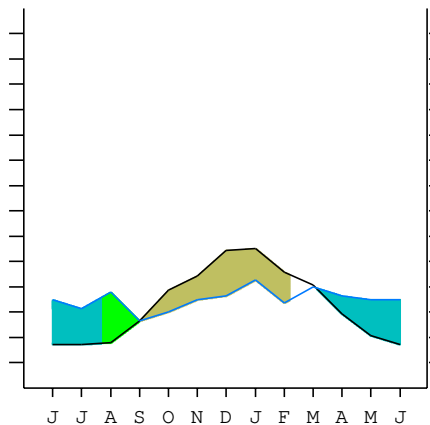
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

USHUAIA (ARGENTINA)

54°49' S 68°19' W 21 m 10/10 y.

T= 5.6 Ic= 7.4 BOREAL (ANTIBOREAL) HYPEROCEANIC
 m= -1.5 Tp= 668 LOW MESOBOREAL
 M= 5.0 Tn= 0 LOW HUMID
 M' = 26.5 Itc= 85
 m' = -19.6 Io= 8.7
 P= 583 mm ———
 PE= 559 mm ———

Imbibing	4 Mar.
Saturation	23 Jul.
Reserve Use	30 Aug.
Deficit	4 Feb.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [A2b]
 + Type: A. Hyperoceanic
 + Subtype: 2. Euhyperoceanic
 + Variant: b. Low
 Thermic types [B3.C6]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 3. Low subtemperate
 + Thermic type: C. Cold
 + Thermic subtype: 6. Cool
 Bioclimatic types [D6.3b.7b]
 + Macrobioclimate: D. BOREAL (ANTIBOREAL)
 + Bioclimate: 6. HYPEROCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 3. MESOBOREAL
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 7. HUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Boxe.Sbo.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 307
 Coldest semester of the year.....(Psw): 276
 Warmest four months period of the year.....(Pcm1): 220
 Following warmest four months period.....(Pcm2): 190
 Positive precipitation dryest 3 months.....(Ppd): 118
 Positive precipitation dryest 2 months.....(Ppd2): 70
 Positive precipitation dryest 1 month.....(Ppd1): 31
 Positive precipitation warmest 3 months.....(Pps): 161
 Positive precipitation warmest 2 months.....(Pps2): 110
 Positive precipitation warmest 1 month.....(Pps1): 64
 Positive precipitation coldest 3 months.....(Ppw): 146
 Positive precipitation coldest 2 months.....(Ppw2): 97
 Positive precipitation coldest 1 month.....(Ppw1): 55

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	146	118	161	158

Seasonal rainfall rhythms: S > F > W > P

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 9.2
 Average coldest month [T].....(Tmin): 1.8
 Maximum temp. warmest month [M].....(Tmmax): 14.4
 Minimum temp. coldest month [m].....(Tmmin): -1.5
 Absolute Max.temp. warmest month [M'].....(Tamax): 26.5
 Absolute Min.temp. coldest month [m'].....(Tamin): -19.6
 First warmest contrasted month [M].....(Tcmax): 14.4 (2)
 First coldest contrasted month [m].....(Tcmin): 5.1 (2)
 Estival temperature.....(Ts): 271
 Positive temperature dryest 3 months.....(Tpd): 171
 Positive temperature dryest 2 months.....(Tpd2): 101
 Positive temperature dryest 1 month.....(Tpd1): 38
 Positive temperature warmest 3 months.....(Tps): 271
 Positive temperature warmest 2 months.....(Tps2): 183
 Positive temperature warmest 1 month.....(Tps1): 92
 Positive temperature coldest 3 months.....(Tpw): 59
 Positive temperature coldest 2 months.....(Tpw2): 38
 Positive temperature coldest 1 month.....(Tpw1): 18

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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
Ultragelid...[M' <=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)					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)												

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.96
 Mediterranean index of January.....(Im1): 1.38
 Mediterranean index of January & February.....(Im2): 1.44
 Mediterranean index of December to February...(Im3): 1.53

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	510	640	460	590	510	480	490	420	550	310	390	480
Tp	88	92	91	79	56	32	21	20	18	38	63	70
Io (Iom)	5.80	6.96	5.05	7.47	9.11	15.0	23.3	21.0	30.6	8.16	6.19	6.86
Seasons	Summer			Autumn			Winter			Spring		
Pp(x10)/Tp	1610 / 271			1580 / 167			1460 / 59			1180 / 171		
Io (Iot)	5.941			9.461			24.75			6.901		
Semesters	December-May						June-November					
Pp(x10)/Tp	3190 / 438						2640 / 230					
Io (Iosm)	7.283						11.48					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5830/668=8.73 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	510	640	460	590	510	480	490	420	550	310	390	480
Tp [T*10]	88	92	91	79	56	32	21	20	18	38	63	70
Iom [Pp/Tp]	580	696	505	747	911	\$\$	\$\$	\$\$	\$\$	816	619	686
Avm [200-Iom]	***	***	***	***	***	***	***	***	***	***	***	***
Seasons	Summer			Autumn			Winter			Spring		
Pp / Tp	1610 / 271			1580 / 167			1460 / 59			1180 / 171		
Iot [Pp/Tp]	594			946			2475			690		
Avs E [Avm<200]	***			***			***			***		

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin](Sp): 7.40
 CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]: -5.01
 CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]: -0.10
 + Hyperoceanic (-20<CI<20)
 CI of Currey (1974) [CI=Sp/(1+Lat/3)]: 0.38
 + Hyperoceanic (0<CI<0.6)
 Rainfall Index of Lang (1925) [R=P/T]: 104.73
 + Temperate humid (160>R>100)
 Aridity Index of Martonne (1926) [Ia=P/(T+10)]: 37.45
 + Humid (60>Ia>30)
 I of Emberger (1930) [Q=100*P/(Tmax²-Tmin²)]: 284.24
 + Humid (Q>90)
 I of Dantin & Revenga (1940) [DR=100*T/P]: 0.95
 + Humid (2>DR>0)
 Aridity Index of UNEP [I=P/PE]: 1.04
 + Humid (I>0.65)
 Potential Erosion I of Fournier (1960) [K=Pi²/P].....: 7.03
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region: 7. Mesoaxeric (Axeric temperate)
 + Thermic type: 6. Microthermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.35	0.24	0.33	0.31	0.32	0.34	0.29	0.39	0.19	0.22	0.27	0.27
T-E ratio	4.14	4.10	3.56	2.52	1.44	0.94	0.90	0.81	1.71	2.84	3.15	3.96
Precipitation-effectiveness:	35.36					Temperature-efficiency: 30.06						
Moisture Index [MI=100*(P-PE)/PE]: 4.29 + C2.Subhumid humid (0<MI<20)												
Index of dryness [DI=100*d/PE]: 4.22 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE]: 8.52 + No surplus (0<HI<10)												
Potential Evapotranspiration PE: 558.99 + Second microthermic (427<PE<570)												

