

# Phytosociological Research Center

www.globalbioclimatics.org

## Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

BARREIROS (ESP LUGO)

Altitude: 550 m.

Latitude: 42°47'N Longitude: 7°27'W

Temperature observation period.: 1943-1969 (27)

Rainfall observation period....: 1943-1969 (27)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	4.80	9.00	0.50	14.70	-5.70	165.0	15.24
Feb.	5.40	10.20	0.70	17.00	-5.50	170.0	17.67
Mar.	8.10	13.50	2.70	21.90	-2.40	164.0	35.11
Apr.	9.00	14.50	3.50	23.50	-1.80	109.0	43.54
May.	12.00	18.50	5.50	28.40	0.10	91.0	68.29
Jun.	15.20	22.30	8.20	31.00	4.10	81.0	91.15
Jul.	17.90	25.40	10.30	33.40	5.90	24.0	110.95
Aug.	17.70	25.20	10.20	32.90	6.20	38.0	101.88
Sep.	15.80	22.50	9.10	31.00	4.10	84.0	77.44
Oct.	12.30	18.10	6.60	25.50	1.30	111.0	52.98
Nov.	7.30	11.60	3.00	17.30	-2.40	202.0	24.73
Dec.	4.80	8.40	1.20	13.00	-5.00	186.0	14.48
Year	10.86	16.60	5.12	24.13	-0.09	1425	653.45

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	204
Compensated thermicity index.....(Itc):	204
Simple continentality index.....(Ic):	13.1
Diurnality index.....(Id):	15.1
Annual ombrothermic index.....(Io):	10.94
Monthly estival ombrothermic index.....(Ios1):	1.34
Bimonthly estival ombrothermic index.....(Ios2):	1.74
Three monthly estival ombrothermic index.....(Ios3):	2.81
Four monthly estival ombrothermic index.....(Ios4):	3.73
Annual ombro-evaporation index.....(Ioe):	0.43
Annual positive temperature.....(Tp):	1303
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	508
Positive precipitation.....(Pp):	1425

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	10	1	1	0	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Semihyperoceanic

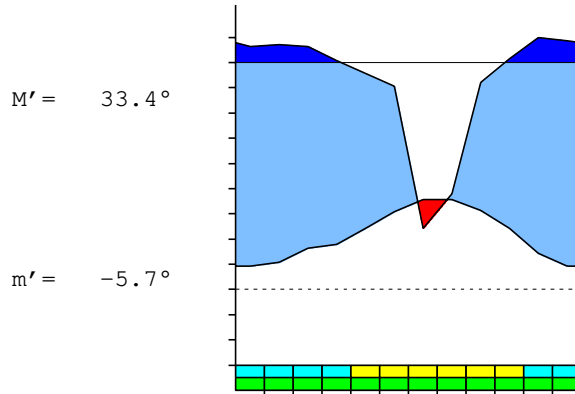
Bioclimate(Variant): TEMPERATE OCEANIC (SUBMEDITERRANEAN)

Bioclimatic Belt...: UPPER MESOTEMPERATE UPPER HUMID

BARREIROS (ESP LUGO)

550 m

P= 1425      42° 47'N      7° 27'W      27/27 y.  
 T= 10.9°      Ic= 13.1      Tp= 1303      Tn= 0  
 m= 0.5°      M= 9.0°      Itc= 204      Io= 10.9



TEMPERATE OCEANIC (SUBMEDITERRANEAN)  
 UPPER MESOTEMPERATE UPPER HUMID

WATER INDEX CARD

BARREIROS (ESP LUGO)

Altitude: 550 m.

Latitude: 42° 47'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	4.8	15	165	0	100	15	0	150	136	9.8
Feb.	5.4	18	170	0	100	18	0	152	144	8.6
Mar.	8.1	35	164	0	100	35	0	129	136	3.6
Apr.	9.0	44	109	0	100	44	0	65	101	1.5
May.	12.0	68	91	0	100	68	0	23	62	0.3
Jun.	15.2	91	81	-10	90	91	0	0	31	-0.1
Jul.	17.9	111	24	-87	3	111	0	0	15	-0.7
Aug.	17.7	102	38	-3	0	41	61	0	8	-0.6
Sep.	15.8	77	84	7	7	77	0	0	4	0.0
Oct.	12.3	53	111	58	65	53	0	0	2	1.0
Nov.	7.3	25	202	35	100	25	0	142	72	7.1
Dec.	4.8	14	186	0	100	14	0	172	122	11.8
Year	10.9	653	1425	*	*	592	61	833	833	*

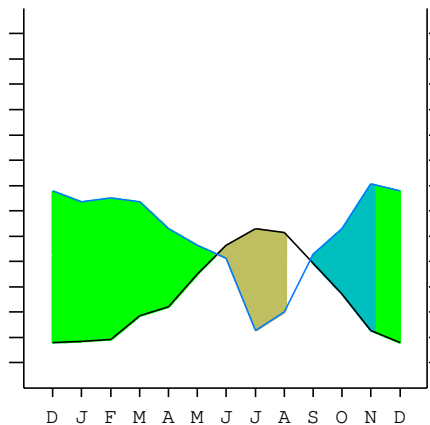
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

BARREIROS (ESP LUGO)

42°47'N    7°27'W    550 m 27/27 y.

T= 10.9      Ic= 13.1      TEMPERATE OCEANIC (SUBMEDITERRANEAN)  
 m= 0.5      Tp= 1303      UPPER MESOTEMPERATE  
 M= 9.0      Tn= 0      UPPER HUMID  
 M' = 33.4    Itc= 204  
 m' = -5.7    Io= 10.9  
 P= 1425      mm    ———  
 PE= 653      mm    ———

Imbibing	28 Aug.
Saturation	6 Nov.
Reserve Use	21 May.
Deficit	2 Aug.



BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semihyperoceanic  
 + Variant .....: b. Low

Thermic types [B1.B5]  
 + Latitudinal zone .....: B. Temperate  
 + Latitudinal belt .....: 1. Low eutemperate  
 + Thermic type .....: B. Temperate  
 + Thermic subtype .....: 5. Subtemperate

Bioclimatic types [C3b.3a.7a]  
 + Macrobioclimate .....: C. TEMPERATE  
 + Bioclimate .....: 3. OCEANIC  
 + Bioclimatic variant .: b. SUBMEDITERRANEAN  
 + Thermic type.....: 3. MESOTEMPERATE  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : a. UPPER  
 Bioclimatic Classification .....: Teco (Sbm) .Mte.Hum

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 429  
 Coldest semester of the year.....(Psw): 996  
 Warmest four months period of the year.....(Pcm1): 227  
 Following warmest four months period.....(Pcm2): 664  
 Positive precipitation dryest 3 months.....(Ppd): 143  
 Positive precipitation dryest 2 months.....(Ppd2): 62  
 Positive precipitation dryest 1 month.....(Ppd1): 24  
 Positive precipitation warmest 3 months.....(Pps): 146  
 Positive precipitation warmest 2 months.....(Pps2): 62  
 Positive precipitation warmest 1 month.....(Pps1): 24  
 Positive precipitation coldest 3 months.....(Ppw): 521  
 Positive precipitation coldest 2 months.....(Ppw2): 351  
 Positive precipitation coldest 1 month.....(Ppw1): 165

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	521	364	143	397

Seasonal rainfall rhythms: W > F > P > S

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 17.9  
 Average coldest month [T].....(Tmin): 4.8  
 Maximum temp. warmest month [M].....(Tmmax): 25.4  
 Minimum temp. coldest month [m].....(Tmmin): 0.5  
 Absolute Max.temp. warmest month [M'].....(Tamax): 33.4  
 Absolute Min.temp. coldest month [m'].....(Tamin): -5.7  
 First warmest contrasted month [M].....(Tcmax): 25.4 (7)  
 First coldest contrasted month [m].....(Tcmin): 10.3 (7)  
 Estival temperature.....(Ts): 508  
 Positive temperature dryest 3 months.....(Tpd): 508  
 Positive temperature dryest 2 months.....(Tpd2): 356  
 Positive temperature dryest 1 month.....(Tpd1): 179  
 Positive temperature warmest 3 months.....(Tps): 514  
 Positive temperature warmest 2 months.....(Tps2): 356  
 Positive temperature warmest 1 month.....(Tps1): 179  
 Positive temperature coldest 3 months.....(Tpw): 150  
 Positive temperature coldest 2 months.....(Tpw2): 96  
 Positive temperature coldest 1 month.....(Tpw1): 48

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 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	o	o	o	o	o	o	o
Ultragelid...[M' <=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)												
Pregelid.....[m' <=0] (Pf)	o	o	o	o							o	o
Agelid.....[m' > 0] (Pf)					o	o	o	o	o	o		
HiperAgelid..[all>0] (Pf)					o	o	o	o	o	o		

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.46  
 Mediterranean index of July.[PE/P].....(Im1): 4.62  
 Mediterranean index of July & August.....(Im2): 3.43  
 Mediterranean index of June, July & August....(Im3): 2.13

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1860	1650	1700	1640	1090	910	810	240	380	840	1110	2020
Tp	48	48	54	81	90	120	152	179	177	158	123	73
Io (Iom)	38.7	34.4	31.5	20.2	12.1	7.58	5.33	1.34	2.15	5.32	9.02	27.7
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	5210 / 150			3640 / 291			1430 / 508			3970 / 354		
Io (Iot)	34.73			12.51			2.815			11.21		
Semesters	December-May						June-November					
Pp(x10)/Tp	8850 / 441						5400 / 862					
Io (Iosm)	20.07						6.265					

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 14250/1303=10.94 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1860	1650	1700	1640	1090	910	810	240	380	840	1110	2020
Tp [T*10]	48	48	54	81	90	120	152	179	177	158	123	73
Iom [Pp/Tp]	\$\$	\$\$	\$\$	\$\$	\$\$	758	533	134	215	532	902	\$\$
Avm [200-Iom]	***	***	***	***	***	***	***	66	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	5210 / 150			3640 / 291			1430 / 508			3970 / 354		
Iot [Pp/Tp]	\$\$			1251			281			1121		
Avs E[Avm<200]	***			***			***			***		
Weak lower semiarid [1]												

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 13.10  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 12.39  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 13.96  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 0.86  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 131.24  
 + Temperate humid (160>R>100)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 68.32  
 + Perhumid (Ia>60)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 220.96  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 0.76  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 2.18  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 28.63  
 + Very low (K<60)

BARREIROS (ESP LUGO)

Latitude: 42°47'N Longitude: 7°27'W Altitude: 550 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....: 3. Termoxerotheric (Mediterranean warm)  
 + Thermic type: 5. Meso-microthermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	1.17	1.19	1.03	0.63	0.47	0.38	0.09	0.15	0.38	0.58	1.34	1.34
T-E ratio	2.16	2.43	3.65	4.05	5.40	6.84	8.05	7.97	7.11	5.54	3.29	2.16
Precipitation-effectiveness: 87.58						Temperature-efficiency .....: 58.64						
Moisture Index [MI=100*(P-PE)/PE] .....: 118.07 + A.Extremely humid (MI>100)												
Index of dryness [DI=100*d/PE] .....: 9.32 + No deficit (0<DI<16.7)												
Index of humidity [HI=100*s/PE] .....: 127.40 + Strong surplus (20<HI)												
Potential Evapotranspiration PE .....: 653.45 + First mesothermic (570<PE<712)												

