

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

YESA (ESP NAVARRA)

Altitude: 756 m.

Latitude: 42°38'N Longitude: 1°10'W

Temperature observation period.: 1973-1997 (25)

Rainfall observation period....: 1973-1997 (25)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	4.40	8.30	0.40	14.20	-4.60	80.4	11.49
Feb.	5.50	9.80	1.20	16.10	-4.40	79.5	15.39
Mar.	7.80	12.80	2.80	20.90	-2.80	66.3	29.69
Apr.	9.30	14.30	4.40	21.90	-0.40	90.7	40.66
May.	13.20	18.40	7.90	26.10	2.10	85.6	71.03
Jun.	17.20	23.10	11.20	31.00	5.80	55.3	100.62
Jul.	20.80	27.70	14.00	35.30	8.30	33.0	128.75
Aug.	20.90	27.70	14.00	34.80	8.10	42.7	120.49
Sep.	17.50	23.60	11.30	30.70	6.00	61.0	83.55
Oct.	12.50	17.30	7.80	24.40	2.00	98.5	50.01
Nov.	7.90	11.90	3.80	19.30	-1.90	99.3	23.96
Dec.	5.20	9.10	1.40	14.80	-4.50	100.9	13.47
Year	11.85	17.00	6.68	24.12	1.14	893	689.09

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	206
Compensated thermicity index.....(Itc):	206
Simple continentality index.....(Ic):	16.5
Diurnality index.....(Id):	13.7
Annual ombrothermic index.....(Io):	6.28
Monthly estival ombrothermic index.....(Ios1):	1.59
Bimonthly estival ombrothermic index.....(Ios2):	1.82
Threemonthly estival ombrothermic index.....(Ios3):	2.22
Fourmonthly estival ombrothermic index.....(Ios4):	3.00
Annual ombro-evaporation index.....(Ioe):	0.73
Annual positive temperature.....(Tp):	1422
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	589
Positive precipitation.....(Pp):	893

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	8	3	1	0	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Euoceanic

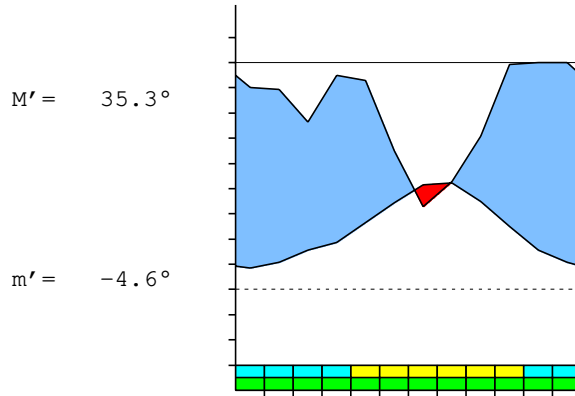
Bioclimate(Variant): TEMPERATE OCEANIC (SUBMEDITERRANEAN)

Bioclimatic Belt...: UPPER MESOTEMPERATE LOW HUMID

YESA (ESP NAVARRA)

756 m

P= 893      42° 38'N      1° 10'W      25/25 y.  
 T= 11.8°    Ic= 16.5      Tp= 1422      Tn= 0  
 m= 0.4°      M= 8.3°      Itc= 206      Io= 6.3



TEMPERATE OCEANIC (SUBMEDITERRANEAN)  
 UPPER MESOTEMPERATE LOW HUMID

WATER INDEX CARD

YESA (ESP NAVARRA)

Altitude: 756 m.

Latitude: 42° 38'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	4.4	11	80	0	100	11	0	69	59	6.0
Feb.	5.5	15	80	0	100	15	0	64	62	4.1
Mar.	7.8	30	66	0	100	30	0	37	49	1.2
Apr.	9.3	41	91	0	100	41	0	50	50	1.2
May.	13.2	71	86	0	100	71	0	15	32	0.2
Jun.	17.2	101	55	-45	55	101	0	0	16	-0.4
Jul.	20.8	129	33	-55	0	88	41	0	8	-0.7
Aug.	20.9	120	43	0	0	43	78	0	4	-0.6
Sep.	17.5	84	61	0	0	61	23	0	2	-0.2
Oct.	12.5	50	99	48	48	50	0	0	1	0.9
Nov.	7.9	24	99	52	100	24	0	24	12	3.1
Dec.	5.2	13	101	0	100	13	0	87	50	6.4
Year	11.8	689	893	*	*	548	141	346	346	*

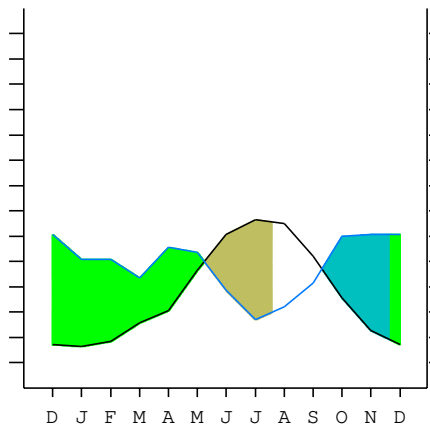
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

YESA (ESP NAVARRA)

42°38'N    1°10'W    756 m 25/25 y.

T= 11.8    Ic= 16.5    TEMPERATE OCEANIC (SUBMEDITERRANEAN)  
 m= 0.4    Tp= 1422    UPPER MESOTEMPERATE  
 M= 8.3    Tn= 0    LOW HUMID  
 M' = 35.3    Itc= 206  
 m' = -4.6    Io= 6.3  
 P= 893    mm    ———  
 PE= 689    mm    ———

Imbibing	10 Sep.
Saturation	21 Nov.
Reserve Use	8 May.
Deficit	18 Jul.



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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 2. Euoceanic  
 + Variant .....: b. Low

Thermic types [B1.B4]  
 + Latitudinal zone ....: B. Temperate  
 + Latitudinal belt ....: 1. Low eutemperate  
 + Thermic type .....: B. Temperate  
 + Thermic subtype .....: 4. Temperate

Bioclimatic types [C3b.3a.7b]  
 + Macroclimate .....: C. TEMPERATE  
 + Bioclimate .....: 3. OCEANIC  
 + Bioclimatic variant .: b. SUBMEDITERRANEAN  
 + Thermic type.....: 3. MESOTEMPERATE  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 7. HUMID  
 + Ombrothermic subtype : b. LOW

Bioclimatic Classification .....: Teco (Sbm) .Mte.Hum

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 376  
 Coldest semester of the year.....(Psw): 517  
 Warmest four months period of the year.....(Pcm1): 192  
 Following warmest four months period.....(Pcm2): 379  
 Positive precipitation dryest 3 months.....(Ppd): 131  
 Positive precipitation dryest 2 months.....(Ppd2): 76  
 Positive precipitation dryest 1 month.....(Ppd1): 33  
 Positive precipitation warmest 3 months.....(Pps): 137  
 Positive precipitation warmest 2 months.....(Pps2): 76  
 Positive precipitation warmest 1 month.....(Pps1): 43  
 Positive precipitation coldest 3 months.....(Ppw): 261  
 Positive precipitation coldest 2 months.....(Ppw2): 181  
 Positive precipitation coldest 1 month.....(Ppw1): 80

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	260	242	131	258

Seasonal rainfall rhythms: W > F > P > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 20.9  
 Average coldest month [T].....(Tmin): 4.4  
 Maximum temp. warmest month [M].....(Tmmax): 27.7  
 Minimum temp. coldest month [m].....(Tmmin): 0.4  
 Absolute Max.temp. warmest month [M'].....(Tamax): 35.3  
 Absolute Min.temp. coldest month [m'].....(Tamin): -4.6  
 First warmest contrasted month [M].....(Tcmax): 27.7 (7)  
 First coldest contrasted month [m].....(Tcmin): 14.0 (7)  
 Estival temperature.....(Ts): 589  
 Positive temperature dryest 3 months.....(Tpd): 589  
 Positive temperature dryest 2 months.....(Tpd2): 417  
 Positive temperature dryest 1 month.....(Tpd1): 208  
 Positive temperature warmest 3 months.....(Tps): 592  
 Positive temperature warmest 2 months.....(Tps2): 417  
 Positive temperature warmest 1 month.....(Tps1): 209  
 Positive temperature coldest 3 months.....(Tpw): 151  
 Positive temperature coldest 2 months.....(Tpw2): 96  
 Positive temperature coldest 1 month.....(Tpw1): 44

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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)												
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		

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.77  
 Mediterranean index of July.[PE/P].....(Im1): 3.90  
 Mediterranean index of July & August.....(Im2): 3.29  
 Mediterranean index of June, July & August....(Im3): 2.67

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1009	804	795	663	907	856	553	330	427	610	985	993
Tp	52	44	55	78	93	132	172	208	209	175	125	79
Io (Iom)	19.4	18.3	14.5	8.50	9.75	6.48	3.22	1.59	2.04	3.49	7.88	12.6
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2608 / 151			2426 / 303			1310 / 589			2588 / 379		
Io (Iot)	17.27			8.007			2.224			6.828		
Semesters	December-May						June-November					
Pp(x10)/Tp	5034 / 454						3898 / 968					
Io (Iosm)	11.09						4.027					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 8932/1422=6.28 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1009	804	795	663	907	856	553	330	427	610	985	993
Tp [T*10]	52	44	55	78	93	132	172	208	209	175	125	79
Iom [Pp/Tp]	\$\$	\$\$	\$\$	850	975	648	322	159	204	349	788	\$\$
Avm [200-Iom]	***	***	***	***	***	***	***	41	***	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2608 / 151			2426 / 303			1310 / 589			2588 / 379		
Iot [Pp/Tp]	1727			801			222			683		
Avs E[Avm<200]	***			***			***			***		
Strong upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 16.50  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 21.01  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 21.29  
 + Oceanic (20<CI<40)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.08  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 75.38  
 + Temperate warm (100>R>60)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 40.88  
 + Humid (60>Ia>30)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 116.43  
 + Humid (Q>90)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 1.33  
 + Humid (2>DR>0)  
 Aridity Index of UNEP [I=P/PE] .....: 1.30  
 + Humid (I>0.65)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 11.40  
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....: 3. Termoxeroteric (Mediterranean warm)  
 + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.54	0.51	0.38	0.51	0.42	0.23	0.12	0.16	0.26	0.51	0.59	0.67
T-E ratio	1.98	2.47	3.51	4.19	5.94	7.74	9.36	9.40	7.88	5.63	3.56	2.34
Precipitation-effectiveness: 48.98						Temperature-efficiency .....: 63.99						
Moisture Index [MI=100*(P-PE)/PE] .....: 29.62 + B1.Humid low-humid (20<MI<40)												
Index of dryness [DI=100*d/PE] .....: 20.51 + Moderate deficit (16.7<DI<33.3)												
Index of humidity [HI=100*s/PE] .....: 50.14 + Strong surplus (20<HI)												
Potential Evapotranspiration PE .....: 689.09 + First mesothermic (570<PE<712)												

