

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

LA FRESNERA (ESP HUELVA)

Altitude: 330 m.

Latitude: 37°49'N Longitude: 7°1'W

Temperature observation period.: 1958-1969 (12)

Rainfall observation period....: 1958-1969 (12)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	9.90	15.10	4.70	20.80	-2.20	148.0	17.37
Feb.	11.20	16.60	5.90	22.50	-0.30	144.0	21.74
Mar.	13.20	18.60	7.80	25.00	3.00	120.0	36.51
Apr.	15.80	21.50	10.00	29.70	4.60	62.0	55.01
May.	20.40	27.70	13.20	35.70	8.60	54.0	100.35
Jun.	24.30	31.80	16.90	39.70	11.10	30.0	141.42
Jul.	27.00	35.80	18.30	41.50	14.40	7.0	174.38
Aug.	27.30	36.50	18.10	42.60	14.40	6.0	166.03
Sep.	24.40	32.20	16.70	40.40	12.30	28.0	119.55
Oct.	18.40	24.50	12.40	31.90	7.10	144.0	64.28
Nov.	13.40	18.30	8.50	24.90	3.90	119.0	30.64
Dec.	10.20	14.90	5.60	20.90	0.40	158.0	17.96
Year	17.96	24.46	11.51	31.30	6.44	1020	945.23

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	378
Compensated thermicity index.....(Itc):	378
Simple continentality index.....(Ic):	17.4
Diurnality index.....(Id):	18.4
Annual ombrothermic index.....(Io):	4.73
Monthly estival ombrothermic index.....(Ios1):	0.22
Bimonthly estival ombrothermic index.....(Ios2):	0.24
Threemonthly estival ombrothermic index.....(Ios3):	0.55
Fourmonthly estival ombrothermic index.....(Ios4):	0.98
Annual ombro-evaporation index.....(Ioe):	0.36
Annual positive temperature.....(Tp):	2155
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	786
Positive precipitation.....(Pp):	1020

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

Latitudinal Belt...: Low eutemperate

Continentality.....: Oceanic - Low Semicontinental

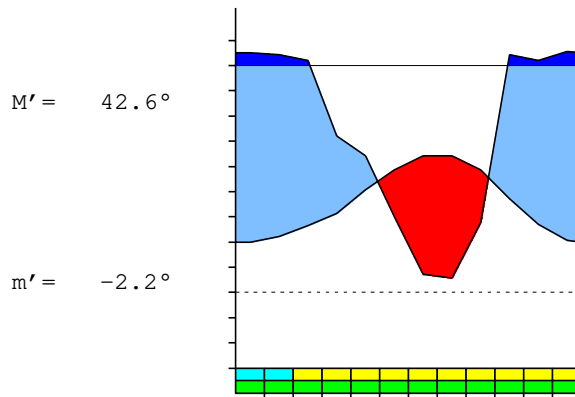
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN LOW SUBHUMID

LA FRESNERA (ESP HUELVA)

330 m

P= 1020 37° 49'N 7° 1'W 12/12 y.
 T= 18.0° Ic= 17.4 Tp= 2155 Tn= 0
 m= 4.7° M= 15.1° Itc= 378 Io= 4.7



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 UPPER THERMOMEDITERRANEAN LOW SUBHUMID

WATER INDEX CARD
 Altitude: 330 m.

LA FRESNERA (ESP HUELVA)
 Latitude: 37° 49'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	9.9	17	148	0	100	17	0	131	109	7.5
Feb.	11.2	22	144	0	100	22	0	122	116	5.6
Mar.	13.2	37	120	0	100	37	0	83	100	2.2
Apr.	15.8	55	62	0	100	55	0	7	53	0.1
May.	20.4	100	54	-46	54	100	0	0	27	-0.4
Jun.	24.3	141	30	-54	0	84	58	0	13	-0.7
Jul.	27.0	174	7	0	0	7	167	0	7	-0.9
Aug.	27.3	166	6	0	0	6	160	0	3	-0.9
Sep.	24.4	120	28	0	0	28	92	0	2	-0.7
Oct.	18.4	64	144	80	80	64	0	0	1	1.2
Nov.	13.4	31	119	20	100	31	0	68	34	2.8
Dec.	10.2	18	158	0	100	18	0	140	87	7.7
Year	18.0	945	1020	*	*	469	477	551	551	*

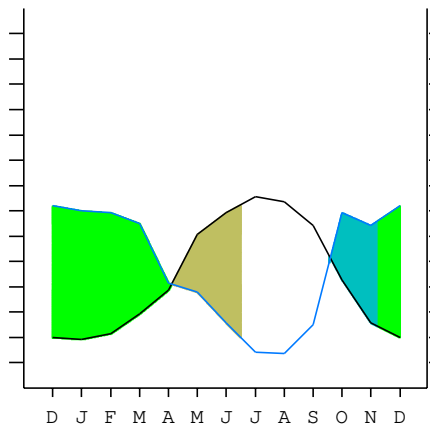
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

LA FRESNERA (ESP HUELVA)

37°49'N 7°1'W 330 m 12/12 y.

T= 18.0 Ic= 17.4 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= 4.7 Tp= 2155 UPPER THERMOMEDITERRANEAN
 M= 15.1 Tn= 0 LOW SUBHUMID
 M' = 42.6 Itc= 378
 m' = -2.2 Io= 4.7
 P= 1020 mm ———
 PE= 945 mm ———

Imbibing	17 Sep.
Saturation	7 Nov.
Reserve Use	4 Apr.
Deficit	15 Jun.



LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1a]

- + Type: B. Oceanic
- + Subtype: 1. Semicontinental
- + Variant: a. Low

Thermic types [B1.A3]

- + Latitudinal zone: B. Temperate
- + Latitudinal belt: 1. Low eutemperate
- + Thermic type: A. Warm
- + Thermic subtype: 3. Subwarm

Bioclimatic types [B8.2a.6b]

- + Macrobioclimate: B. MEDITERRANEAN
- + Bioclimate: 8. PLUVISEASONAL-OCEANIC
- + Bioclimatic variant ..:
- + Thermic type.....: 2. THERMOMEDITERRANEAN
- + Thermic subtype.....: a. UPPER
- + Ombrothermic type ...: 6. SUBHUMID
- + Ombrothermic subtype : b. LOW

Bioclimatic Classification: Mehc.Tme.Shu

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 269
 Coldest semester of the year.....(Psw): 751
 Warmest four months period of the year.....(Pcm1): 71
 Following warmest four months period.....(Pcm2): 569
 Positive precipitation dryest 3 months.....(Ppd): 41
 Positive precipitation dryest 2 months.....(Ppd2): 13
 Positive precipitation dryest 1 month.....(Ppd1): 6
 Positive precipitation warmest 3 months.....(Pps): 41
 Positive precipitation warmest 2 months.....(Pps2): 13
 Positive precipitation warmest 1 month.....(Pps1): 6
 Positive precipitation coldest 3 months.....(Ppw): 450
 Positive precipitation coldest 2 months.....(Ppw2): 306
 Positive precipitation coldest 1 month.....(Ppw1): 148

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	450	236	43	291

Seasonal rainfall rhythms: W > F > P > S

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 27.3
 Average coldest month [T].....(Tmin): 9.9
 Maximum temp. warmest month [M].....(Tmmax): 36.5
 Minimum temp. coldest month [m].....(Tmmin): 4.7
 Absolute Max.temp. warmest month [M'].....(Tamax): 42.6
 Absolute Min.temp. coldest month [m'].....(Tamin): -2.2
 First warmest contrasted month [M].....(Tcmax): 36.5 (8)
 First coldest contrasted month [m].....(Tcmin): 18.1 (8)
 Estival temperature.....(Ts): 786
 Positive temperature dryest 3 months.....(Tpd): 787
 Positive temperature dryest 2 months.....(Tpd2): 543
 Positive temperature dryest 1 month.....(Tpd1): 273
 Positive temperature warmest 3 months.....(Tps): 787
 Positive temperature warmest 2 months.....(Tps2): 543
 Positive temperature warmest 1 month.....(Tps1): 273
 Positive temperature coldest 3 months.....(Tpw): 313
 Positive temperature coldest 2 months.....(Tpw2): 201
 Positive temperature coldest 1 month.....(Tpw1): 99

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 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										
Agelid.....[m' > 0] (Pf)			o	o	o	o	o	o	o	o	o	o
HiperAgelid..[all>0] (Pf)			o	o	o	o	o	o	o	o	o	o

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.93
 Mediterranean index of July.[PE/P].....(Im1): 24.91
 Mediterranean index of July & August.....(Im2): 26.19
 Mediterranean index of June, July & August....(Im3): 11.21

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1580	1480	1440	1200	620	540	300	70	60	280	1440	1190
Tp	102	99	112	132	158	204	243	270	273	244	184	134
Io (Iom)	15.5	14.9	12.9	9.09	3.92	2.65	1.23	0.26	0.22	1.15	7.83	8.88
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	4500 / 313			2360 / 494			430 / 786			2910 / 562		
Io (Iot)	14.38			4.777			0.547			5.178		
Semesters	December-May						June-November					
Pp(x10)/Tp	6860 / 807						3340 / 1348					
Io (Iosm)	8.501						2.478					

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 10200/2155=4.73 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1580	1480	1440	1200	620	540	300	70	60	280	1440	1190
Tp [T*10]	102	99	112	132	158	204	243	270	273	244	184	134
Iom [Pp/Tp]	\$\$	\$\$	\$\$	909	392	265	123	26	22	115	783	888
Avm [200-Iom]	***	***	***	***	***	***	77	174	178	85	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	4500 / 313			2360 / 494			430 / 786			2910 / 562		
Iot [Pp/Tp]	1438			478			55			518		
Avs E[Avm<200]	***			***			429			***		
Lower hyperarid [2]							Weak lower arid [1]					
Strong lower semiarid [1]							Weak lower semiarid [1]					

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	17.40
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		27.84
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		25.92
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		1.28
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T]		56.80
+ Semiarid (60>R>40)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		36.48
+ Humid (60>Ia>30)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		77.85
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P]		1.76
+ Humid (2>DR>0)		
Aridity Index of UNEP [I=P/PE]		1.08
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		24.47
+ Very low (K<60)		

LA FRESNERA (ESP HUELVA)

Latitude: 37°49'N Longitude: 7°1'W Altitude: 330 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.86	0.80	0.62	0.27	0.21	0.10	0.02	0.02	0.09	0.65	0.61	0.92
T-E ratio	4.45	5.04	5.94	7.11	9.18	10.93	12.15	12.28	10.98	8.28	6.03	4.59
Precipitation-effectiveness: 51.70						Temperature-efficiency						96.97
Moisture Index [MI=100*(P-PE)/PE]												7.91
+ C2.Subhumid humid (0<MI<20)												
Index of dryness [DI=100*d/PE]												50.43
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												58.33
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE												945.23
+ Third mesothermic (855<PE<997)												

