

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

ZARZADILLA DE TOTANA (ESP MURCIA) Altitude: 861 m.

Latitude: 37°53'N Longitude: 1°42'W
 Temperature observation period.: 1942-1969 (28)
 Rainfall observation period....: 1942-1969 (28)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	9.30	13.10	5.60	20.80	-0.10	33.0	16.12
Feb.	11.00	15.80	6.20	24.10	0.30	29.0	21.81
Mar.	13.70	18.60	8.90	26.50	2.70	30.0	40.34
Apr.	16.00	20.90	11.20	28.00	5.60	65.0	57.60
May.	19.80	25.40	14.10	32.60	8.40	35.0	95.96
Jun.	23.40	29.40	17.40	35.80	12.20	16.0	132.25
Jul.	26.70	33.40	20.00	39.30	16.10	2.0	171.38
Aug.	26.40	33.20	19.70	38.70	15.90	6.0	156.39
Sep.	23.40	29.40	17.40	35.30	12.60	23.0	110.92
Oct.	18.70	23.80	13.70	31.20	8.40	42.0	67.30
Nov.	13.70	17.90	9.50	25.40	4.10	29.0	32.90
Dec.	10.10	13.70	6.60	20.40	1.10	49.0	18.37
Year	17.68	22.88	12.53	29.84	7.27	359	921.33

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	364
Compensated thermicity index.....(Itc):	364
Simple continentality index.....(Ic):	17.4
Diurnality index.....(Id):	13.5
Annual ombrothermic index.....(Io):	1.69
Monthly estival ombrothermic index.....(Ios1):	0.07
Bimonthly estival ombrothermic index.....(Ios2):	0.15
Threemonthly estival ombrothermic index.....(Ios3):	0.31
Fourmonthly estival ombrothermic index.....(Ios4):	0.61
Annual ombro-evaporation index.....(Ioe):	0.53
Annual positive temperature.....(Tp):	2122
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	765
Positive precipitation.....(Pp):	359

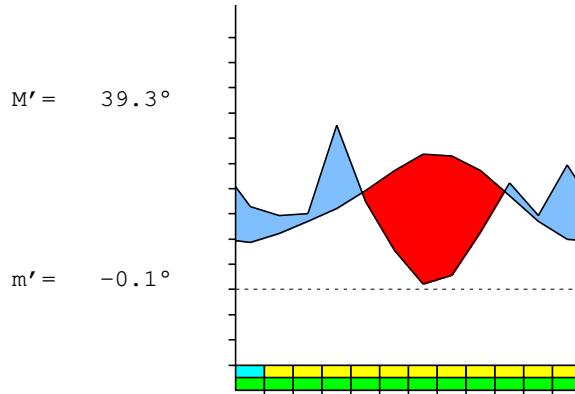
N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	2	5	1	4	0

Latitudinal Belt...: Low eutemperate
 Continentality.....: Oceanic - Low Semicontinental
 Bioclimate.....: MEDITERRANEAN XERIC-OCEANIC
 Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN UPPER SEMIARID

ZARZADILLA DE TOTANA (ESP MURCIA)

861 m

P= 359 37° 53'N 1° 42'W 28/28 y.
 T= 17.7° Ic= 17.4 Tp= 2122 Tn= 0
 m= 5.6° M= 13.1° Itc= 364 Io= 1.7



MEDITERRANEAN XERIC-OCEANIC
 UPPER THERMOMEDITERRANEAN UPPER SEMIARID

WATER INDEX CARD ZARZADILLA DE TOTANA (ESP MURCIA)

Altitude: 861 m. Latitude: 37° 53'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	9.3	16	33	17	48	16	0	0	0	1.0
Feb.	11.0	22	29	7	55	22	0	0	0	0.3
Mar.	13.7	40	30	-10	44	40	0	0	0	-0.2
Apr.	16.0	58	65	7	52	58	0	0	0	0.1
May.	19.8	96	35	-52	0	87	9	0	0	-0.6
Jun.	23.4	132	16	0	0	16	116	0	0	-0.8
Jul.	26.7	171	2	0	0	2	169	0	0	-0.9
Aug.	26.4	156	6	0	0	6	150	0	0	-0.9
Sep.	23.4	111	23	0	0	23	88	0	0	-0.7
Oct.	18.7	67	42	0	0	42	25	0	0	-0.3
Nov.	13.7	33	29	0	0	29	4	0	0	-0.1
Dec.	10.1	18	49	31	31	18	0	0	0	1.6
Year	17.7	921	359	*	*	359	562	0	0	*

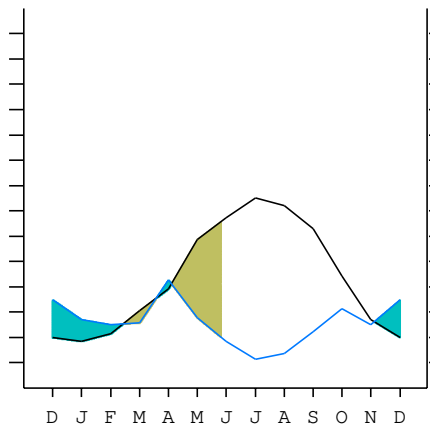
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coeficient DF = Deficit SP = Superavit

ZARZADILLA DE TOTANA (ESP MURCIA)

37°53'N 1°42'W 861 m 28/28 y.

T= 17.7 Ic= 17.4 MEDITERRANEAN XERIC-OCEANIC
 m= 5.6 Tp= 2122 UPPER THERMOMEDITERRANEAN
 M= 13.1 Tn= 0 UPPER SEMIARID
 M' = 39.3 Itc= 364
 m' = -0.1 Io= 1.7
 P= 359 mm
 PE= 921 mm

Imbibing	4 Nov.
Saturation	
Reserve Use	4 Apr.
Deficit	26 May.



ZARZADILLA DE TOTANA (ESP MURCIA)

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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 [B6.2a.4a]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 6. XERIC-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 2. THERMOMEDITERRANEAN
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 4. SEMIARID
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification: MepDC.Tme.Sar

ZARZADILLA DE TOTANA (ESP MURCIA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 124
 Coldest semester of the year.....(Psw): 235
 Warmest four months period of the year.....(Pcm1): 47
 Following warmest four months period.....(Pcm2): 153
 Positive precipitation dryest 3 months.....(Ppd): 24
 Positive precipitation dryest 2 months.....(Ppd2): 8
 Positive precipitation dryest 1 month.....(Ppd1): 2
 Positive precipitation warmest 3 months.....(Pps): 24
 Positive precipitation warmest 2 months.....(Pps2): 8
 Positive precipitation warmest 1 month.....(Pps1): 2
 Positive precipitation coldest 3 months.....(Ppw): 111
 Positive precipitation coldest 2 months.....(Ppw2): 82
 Positive precipitation coldest 1 month.....(Ppw1): 33

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	111	130	24	94

Seasonal rainfall rhythms: P > W > F > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.7
 Average coldest month [T].....(Tmin): 9.3
 Maximum temp. warmest month [M].....(Tmmax): 33.4
 Minimum temp. coldest month [m].....(Tmmin): 5.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 39.3
 Absolute Min.temp. coldest month [m'].....(Tamin): -0.1
 First warmest contrasted month [M].....(Tcmax): 33.2 (8)
 First coldest contrasted month [m].....(Tcmin): 19.7 (8)
 Estival temperature.....(Ts): 765
 Positive temperature dryest 3 months.....(Tpd): 765
 Positive temperature dryest 2 months.....(Tpd2): 531
 Positive temperature dryest 1 month.....(Tpd1): 267
 Positive temperature warmest 3 months.....(Tps): 765
 Positive temperature warmest 2 months.....(Tps2): 531
 Positive temperature warmest 1 month.....(Tps1): 267
 Positive temperature coldest 3 months.....(Tpw): 304
 Positive temperature coldest 2 months.....(Tpw2): 194
 Positive temperature coldest 1 month.....(Tpw1): 93

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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											
Agelid.....[m' > 0] (Pf)		o	o	o	o	o	o	o	o	o	o	o
HiperAgelid..[all>0] (Pf)		o	o	o	o	o	o	o	o	o	o	o

ZARZADILLA DE TOTANA (ESP MURCIA)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 2.57
 Mediterranean index of July.[PE/P].....(Im1): 85.69
 Mediterranean index of July & August.....(Im2): 40.97
 Mediterranean index of June, July & August....(Im3): 19.17

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	490	330	290	300	650	350	160	20	60	230	420	290
Tp	101	93	110	137	160	198	234	267	264	234	187	137
Io (Iom)	4.85	3.55	2.64	2.19	4.06	1.77	0.68	0.07	0.23	0.98	2.25	2.12
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1110 / 304			1300 / 495			240 / 765			940 / 558		
Io (Iot)	3.651			2.626			0.314			1.685		
Semesters	December-May						June-November					
Pp(x10)/Tp	2410 / 799						1180 / 1323					
Io (Iosm)	3.016						0.892					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 3590/2122=1.69 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	490	330	290	300	650	350	160	20	60	230	420	290
Tp [T*10]	101	93	110	137	160	198	234	267	264	234	187	137
Iom [Pp/Tp]	485	355	264	219	406	177	68	7	23	98	225	212
Avm [200-Iom]	***	***	***	***	***	23	132	193	177	102	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1110 / 304			1300 / 495			240 / 765			940 / 558		
Iot [Pp/Tp]	365			263			31			168		
Avs E[Avm<200]	***			***			501			***		
Lower ultrahyperarid [1]							Lower hyperarid [1]					
Upper hyperarid [1]							Weak lower arid [1]					
Weak upper arid [1]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 17.40
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	27.77
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	25.88
+ 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]	20.30
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	12.97
+ Arid -steppic- (15>Ia>5)	
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]	33.11
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P]	4.93
+ Arid (6>DR>3)	
Aridity Index of UNEP [I=P/PE]	0.39
+ Semiarid (0.5>Im>0.2)	
Potential Erosion I of Fournier (1960) [K=Pi ² /P]	11.77
+ Very low (K<60)	

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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	0.17	0.14	0.13	0.29	0.13	0.05	0.00	0.02	0.07	0.16	0.13	0.25
T-E ratio	4.19	4.95	6.16	7.20	8.91	10.53	12.02	11.88	10.53	8.42	6.16	4.55
Precipitation-effectiveness: 15.37						Temperature-efficiency						95.49
Moisture Index [MI=100*(P-PE)/PE]												-61.03
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												61.03
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												921.33
+ Third mesothermic (855<PE<997)												

