

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

TOTANA (ESP MURCIA)

Altitude: 1200 m.

Latitude: 37°51'N Longitude: 1°34'W

Temperature observation period.: 1953-1975 (23)

Rainfall observation period....: 1953-1989 (37)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	5.90	10.10	1.80	17.70	-2.50	37.5	15.58
Feb.	6.50	10.90	2.10	18.60	-3.80	41.6	17.52
Mar.	8.50	13.30	3.80	20.90	-1.40	57.3	30.69
Apr.	10.20	14.80	5.50	21.70	0.90	64.9	41.77
May.	14.10	19.10	9.10	25.60	3.70	44.0	71.85
Jun.	17.30	22.60	12.00	28.70	6.80	29.4	95.08
Jul.	21.50	27.20	15.80	33.50	11.40	5.5	127.97
Aug.	21.60	27.20	15.90	32.90	11.30	12.6	120.52
Sep.	18.50	23.90	13.20	29.20	8.90	20.8	87.18
Oct.	13.40	18.00	8.90	25.00	4.00	74.9	52.41
Nov.	9.00	13.20	4.90	20.00	0.10	59.0	27.01
Dec.	6.70	10.70	2.80	17.60	-2.30	53.1	18.02
Year	12.77	17.58	7.98	24.28	3.09	501	705.60

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	247
Compensated thermicity index.....(Itc):	247
Simple continentality index.....(Ic):	15.7
Diurnality index.....(Id):	11.4
Annual ombrothermic index.....(Io):	3.27
Monthly estival ombrothermic index.....(Ios1):	0.26
Bimonthly estival ombrothermic index.....(Ios2):	0.42
Three monthly estival ombrothermic index.....(Ios3):	0.79
Four monthly estival ombrothermic index.....(Ios4):	1.23
Annual ombro-evaporation index.....(Ioe):	0.60
Annual positive temperature.....(Tp):	1532
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	604
Positive precipitation.....(Pp):	501

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	1	2	2	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Euoceanic

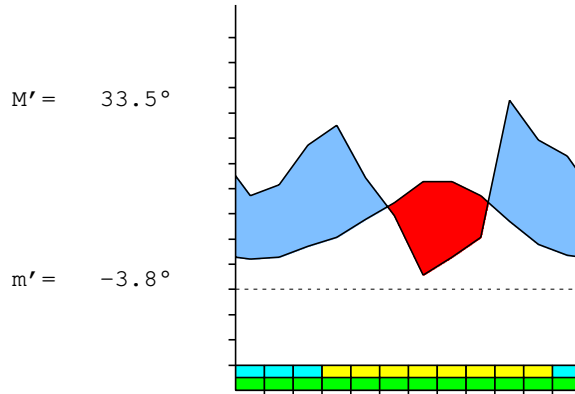
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: UPPER MESOMEDITERRANEAN UPPER DRY

TOTANA (ESP MURCIA)

1200 m

P= 501      37° 51'N      1° 34'W      23/37 y.  
 T= 12.8°    Ic= 15.7      Tp= 1532      Tn= 0  
 m= 1.8°      M= 10.1°      Itc= 247      Io= 3.3



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 UPPER MESOMEDITERRANEAN UPPER DRY

WATER INDEX CARD

TOTANA (ESP MURCIA)

Altitude: 1200 m.

Latitude: 37° 51'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	5.9	16	38	10	100	16	0	11	6	1.4
Feb.	6.5	18	42	0	100	18	0	24	15	1.3
Mar.	8.5	31	57	0	100	31	0	27	21	0.8
Apr.	10.2	42	65	0	100	42	0	23	22	0.5
May.	14.1	72	44	-28	72	72	0	0	11	-0.3
Jun.	17.3	95	29	-66	6	95	0	0	5	-0.6
Jul.	21.5	128	6	-6	0	12	116	0	3	-0.9
Aug.	21.6	121	13	0	0	13	108	0	1	-0.8
Sep.	18.5	87	21	0	0	21	66	0	1	-0.7
Oct.	13.4	52	75	22	22	52	0	0	0	0.4
Nov.	9.0	27	59	32	54	27	0	0	0	1.1
Dec.	6.7	18	53	35	90	18	0	0	0	1.9
Year	12.8	706	501	*	*	415	290	85	85	*

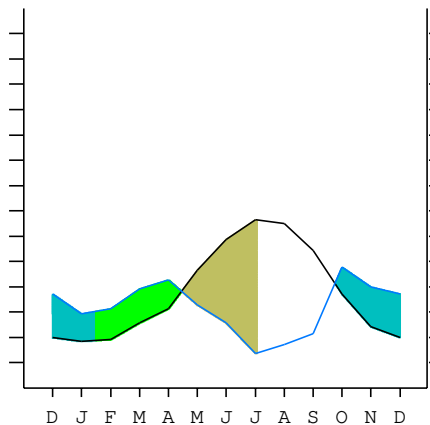
R = Reserve    VR = Variation of the reserve    RE = Real evapotranspiration  
 DR = Drainage    HC = Humidity coefficient    DF = Deficit    SP = Superavit

TOTANA (ESP MURCIA)

37°51'N    1°34'W    1200 m 23/37 y.

T= 12.8    Ic= 15.7    MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 1.8    Tp= 1532    UPPER MESOMEDITERRANEAN  
 M= 10.1    Tn= 0    UPPER DRY  
 M' = 33.5    Itc= 247  
 m' = -3.8    Io= 3.3  
 P= 501    mm    ———  
 PE= 706    mm    ———

Imbibing	23 Sep.
Saturation	15 Jan.
Reserve Use	14 Apr.
Deficit	2 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 [B8.3a.5a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 8. PLUVISEASONAL-OCEANIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 3. MESOMEDITERRANEAN  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....: Mehc.Mme.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 187  
 Coldest semester of the year.....(Psw): 313  
 Warmest four months period of the year.....(Pcm1): 68  
 Following warmest four months period.....(Pcm2): 225  
 Positive precipitation dryest 3 months.....(Ppd): 39  
 Positive precipitation dryest 2 months.....(Ppd2): 18  
 Positive precipitation dryest 1 month.....(Ppd1): 6  
 Positive precipitation warmest 3 months.....(Pps): 39  
 Positive precipitation warmest 2 months.....(Pps2): 18  
 Positive precipitation warmest 1 month.....(Pps1): 13  
 Positive precipitation coldest 3 months.....(Ppw): 132  
 Positive precipitation coldest 2 months.....(Ppw2): 79  
 Positive precipitation coldest 1 month.....(Ppw1): 38

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	132	166	47	154

Seasonal rainfall rhythms: P > F > W > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 21.6  
 Average coldest month [T].....(Tmin): 5.9  
 Maximum temp. warmest month [M].....(Tmmax): 27.2  
 Minimum temp. coldest month [m].....(Tmmin): 1.8  
 Absolute Max.temp. warmest month [M'].....(Tamax): 33.5  
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.8  
 First warmest contrasted month [M].....(Tcmax): 27.2 (7)  
 First coldest contrasted month [m].....(Tcmin): 15.8 (7)  
 Estival temperature.....(Ts): 604  
 Positive temperature dryest 3 months.....(Tpd): 616  
 Positive temperature dryest 2 months.....(Tpd2): 431  
 Positive temperature dryest 1 month.....(Tpd1): 215  
 Positive temperature warmest 3 months.....(Tps): 616  
 Positive temperature warmest 2 months.....(Tps2): 431  
 Positive temperature warmest 1 month.....(Tps1): 216  
 Positive temperature coldest 3 months.....(Tpw): 191  
 Positive temperature coldest 2 months.....(Tpw2): 124  
 Positive temperature coldest 1 month.....(Tpw1): 59

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.41  
 Mediterranean index of July.[PE/P].....(Im1): 23.27  
 Mediterranean index of July & August.....(Im2): 13.73  
 Mediterranean index of June, July & August....(Im3): 7.23

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	531	375	416	573	649	440	294	55	126	208	749	590
Tp	67	59	65	85	102	141	173	215	216	185	134	90
Io (Iom)	7.93	6.36	6.40	6.74	6.36	3.12	1.70	0.26	0.58	1.12	5.59	6.56
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1322 / 191			1662 / 328			475 / 604			1547 / 409		
Io (Iot)	6.921			5.067			0.786			3.782		
Semesters	December-May						June-November					
Pp(x10)/Tp	2984 / 519						2022 / 1013					
Io (Iosm)	5.750						1.996					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5006/1532=3.27 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	531	375	416	573	649	440	294	55	126	208	749	590
Tp [T*10]	67	59	65	85	102	141	173	215	216	185	134	90
Iom [Pp/Tp]	793	636	640	674	636	312	170	26	58	112	559	656
Avm [200-Iom]	***	***	***	***	***	***	30	174	142	88	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1322 / 191			1662 / 328			475 / 604			1547 / 409		
Iot [Pp/Tp]	692			507			79			378		
Avs E[Avm<200]	***			***			346			***		
Lower hyperarid [1]							Weak lower arid [1]					
Weak upper arid [1]							Strong lower semiarid [1]					
Strong upper semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp):	15.70
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....		23.10
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....		22.00
+ Oceanic (20<CI<40)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....		1.15
+ Subcontinental (1.1<CI<1.7)		
Rainfall Index of Lang (1925) [R=P/T] .....		39.21
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....		21.99
+ Subhumid (30>Ia>20)		
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....		67.96
+ Subhumid (90>Q>50)		
I of Dantin & Revenga (1940) [DR=100*T/P] .....		2.55
+ Semiarid (3>DR>2)		
Aridity Index of UNEP [I=P/PE] .....		0.71
+ Humid (I>0.65)		
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....		11.21
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....

- + Climate .....
- + Region .....
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.22	0.24	0.32	0.34	0.20	0.11	0.02	0.04	0.08	0.36	0.32	0.31
T-E ratio	2.66	2.93	3.82	4.59	6.35	7.78	9.67	9.72	8.32	6.03	4.05	3.01
Precipitation-effectiveness: 25.51						Temperature-efficiency .....						68.94
Moisture Index [MI=100*(P-PE)/PE] .....												-29.05
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE] .....												41.14
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....												12.09
+ Moderate surplus (10<HI<20)												
Potential Evapotranspiration PE .....												705.60
+ First mesothermic (570<PE<712)												

